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CURATOR

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CURATOR

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Borrowing and Lending

HARRY L. SHAPIRO, CHAIRMAN, DEPARTMENT OF ANTHROPOLOGY
THE AMERICAN MUSEUM OF NATURAL HISTORY

Shakespeare had Polonius advise Laertes "neither a borrower nor a lender be; for loan oft loses both itself and friend, and borrowing dulls the edge of husbandry." However sound such an admonition may be in what nowadays is called inter-personal relations, it has certainly not guided inter-museum ones. When one thinks of the amount of time spent in our museums in the putting on and taking off of special shows, the borrowing from other institutions all this entails, and the lending that is the inevitable twin of borrowing, one might only conclude from the absence of any serious protests that curators do not see eye to eye with the ancient Dane.

I do not know when the traffic in borrowing and lending became an established practice in museums. Certainly art museums have for a long time been accustomed to supplementing their permanent exhibits with special shows, sometimes of living artists, but often of various types of historical exhibits. Where their own resources were not adequate, which was frequently the case, they were obliged to borrow from sister museums or from private collections. It is of course obvious that the staging of such shows provided museums, if only temporarily, with the means to extend their coverage to a degree their own collections would never allow. It is therefore thoroughly understandable that these displays would have a strong appeal both to the public and to museum authorities, becoming in consequence a traditional function of many art museums.

Among natural history and other science museums, borrowing and lending were at one time confined very largely to scientific purposes. The curator of one museum, working on a special problem requiring supplementary material, has long been in the habit of seeking from other museums the loan of specimens essential to his research. Or, to cite another example, an institution might frequently invite a specialist elsewhere to work up a collection of insects, or some other organism, to be lent to him for the purpose. Because virtually no single museum enjoys the services of as many special

scholars as its collections might demand, this interchange, too, was often mutually advantageous and consequently long and widely practiced.

In recent years, however, museums have become more active in mounting temporary and special exhibits in a far greater range of subjects than used to be customary. This is especially evident in those more or less vaguely defined museums that embrace art, culture, and local history, in university museums, and in natural history museums with an anthropological section, but it is by no means limited to them. The growth of such activities reflects, I suppose, the development in museum policy generally of a more active educational role in the community. Many museums no longer feel that they have accomplished their purpose or have exhausted their potentialities by simply displaying in more or less permanent fashion what they happen to possess. Seeking a more dynamic function, they have sought more and more to present to their public material either not locally available or not locally concentrated. Thus these museums can and do serve as a sort of distributing agent to the rest of the country for the ordinarily inaccessible riches of other institutions and of private collections. Undoubtedly of significance in this development is the desire of museums, particularly those with ties or connections with formal educational institutions, to enrich curricular offerings and to play a more vital role in the educational process. And in this, as well as in other situations, museums have pretty generally recognized that such activities are reciprocal and serve to maintain public interest in and support for their healthy growth.

For these and for other reasons, too, the temporary show made up of borrowed elements has become so popular that traveling exhibits on a wide variety of subjects, touring around the country's museums, are quite regularly offered. Many museums arrange a whole season of rotating exhibits of this kind, replacing one show as another arrives according to planned schedules. As the number of museums in the United States has increased over the last generation or two, the total of all kinds of temporary and special shows based on borrowed specimens, whether of the "one shot" or rotating type, must reach very considerable dimensions.

Although in principle I am completely sympathetic with this development, have felt myself frequently to have been the recipient of much pleasure and profit from visiting shows in familiar museums, and have received fresh insights from the juxtapositions they permit, nevertheless I have come to the conclusion that something of an imbalance has developed in the growth of the borrowing and lending that are essential to it all. Perhaps my reaction is the product of special circumstances, but, even if it is not a universal one, I suspect that it is perhaps more widespread than is commonly realized. One of the things that inevitably becomes all too apparent to the experienced curator is that there are

museums usually on the borrowing side of the ledger, others that are almost always on the lending side.

By and large, the persistent borrowers are the smaller museums, and the perennial lenders are the larger metropolitan ones. There are of course numerous exceptions: the museums that engage in both with roughly equal frequency, the small museum with some special treasures in frequent demand, and certain metropolitan museums whose basic exhibition policy is built on rotating exhibits that are borrowed from various sources. The borrowers on the whole, I imagine, are quite content with this system. They are on the receiving end, and any extra work involved is amply repaid by the kudos and the increment that these shows create. The borrowing *and* lending museums may well take the philosophical attitude that if they are put to expense and trouble in lending, they can balance it off by their active borrowing policy—one good turn deserving another. The museums, however, that for one reason or another find the balance heavily tilted downward on the lending side have, I think, a just complaint worth consideration. These are usually the great museums, with vast collections of rich and unique material, generally located in the major cities of the country. They are peculiarly vulnerable to the demands of other museums all over the country for the loan of objects for an enormous variety of purposes. Because they are few, the pressure is concentrated, and continuous.

For some of the more exposed museums the load is becoming a serious matter, and anyone deeply involved in it can scarcely refrain from speculating from time to time, when the burden seems especially heavy, on how far it can continue to increase without a quiet revolt and a fundamental change in the conventions that govern these interchanges. Because it is obviously difficult to generalize for all of them, I shall speak from my own experience at The American Museum of Natural History where, although the situation may be acute, perhaps it is not unique.

In a way The American Museum of Natural History, with its collections of primitive art as well as its scientific materials, is more familiar with all aspects of the problem than the strictly art or strictly natural history museum. The Department of Anthropology at The American Museum of Natural History has experienced over the past thirty years or so steady and increasing demands on its collections. They have come not only from museums in this country (in fact the bulk are from this source) but also from abroad. The requests for loans are principally for temporary exhibits, usually of a special nature, for example, pre-Columbian art or African sculpture. As many of these shows are designed to illustrate the highlights of the subject, the borrower, if he is well versed in the subject, usually expects, or at least asks for, the finest specimens we possess. This means that a large proportion of the pieces sought are on exhibition in our own

halls. Frequently, however, the prospective borrower is not a specialist, being only vaguely familiar with the field, and prefers to place the responsibility of choice upon us. Because, in such cases, the purpose of the show is apt to be intellectually rather nebulous, the specifications are equally so, and no clear-cut definitions of the logic of the exhibit are provided to guide us.

The total loans granted in recent years have run annually to about seventy, in some years even more. Of these, about twenty are in the strictest sense inter-museum ones. Each loan naturally varies in size from a few outstanding items to very considerable collections running up to a hundred or more pieces. At the very least, this amounts to more than a loan per week for all categories, and for inter-museum loans for special shows an average of about one every two or three weeks. The tasks of selection, handling, and recording that are necessary must be undertaken in addition to the regular duties of a heavily burdened personnel, never adequate at best for all the chores of a busy department. Let me outline briefly a typical example. I receive a polite and formal request for the loan of a series of specimens for an important exhibit, planned all too frequently to open sometime within a month or six weeks. Consequently the deadline for shipping is usually imminent. The writer may send us a specific list, or he may merely want first-class but unspecified pieces to insure the success of a show on the art, let us say, of the Pacific islands. In the former case our work is lessened but the problem is aggravated, because the indicated items are generally well known ones that we proudly exhibit ourselves. To accede fully means denuding our own displays for several months, or more if the borrower asks for an extension because of the overwhelming success of his exhibit or because demands from other museums suggest that it go on tour.

All too often the choice of pieces and coverage is left to us, and one of the staff knowledgeable in the area must spend time examining our reserve collection and handling a large number of specimens before he has finally settled on a suitable selection that he hopes will fit the needs of the show. Sometimes our correspondent, on his own or at our suggestion, will pay us a visit to discuss his show and its requirements. Generally these conferences extend throughout a day or more, interlaced with visits to the exhibition halls and to storage and with discussions on the merits of various objects deemed suitable.

Once the loan has been determined, all the pieces must be assembled either from storage or from exhibition. To remove objects from our old-fashioned cases sometimes means requisitioning a force of workmen to take off the heavy glass fronts and to handle them safely. Now each piece must be checked, loan sheets typed, and all the pertinent information on size and provenience added. For insurance, values often troublesome

to arrive at must be determined. The collection is now ready for packing and shipping. Although some borrowers arrange to have professional packers take over this operation, a considerable number of them depend upon us to arrange for the packing on our own premises, usually by one of our departmental assistants or by one of the men in the general shipping department of the Museum.

On the return of the loan, the procedure is repeated in reverse. We must unpack the cases, check the objects against the loan sheets, and finally return the pieces to storage or to exhibition, once more requisitioning special help to open the cumbersome cases.

It is obvious that all this means an appreciable amount of time on the part of various people. The cost of all this may, of course, reach quite substantial amounts in the course of a year. The "borrowing" museum, however, which normally pays only for insurance, packing, and transportation, never extends its payments to cover these expenses. The lending institution is expected to absorb it under general overhead. This, I suppose, is all right if you can get away with it, but as the traffic increases there is bound to arise the awareness that the amount so absorbed is perhaps an unwarranted burden. Fully as serious, can a department subjected to these increasing extracurricular services perform its own duties without calling for added help? In any case, is it fair when substantial sums are expended in organizing and staging these shows that the lender's expenses be entirely overlooked?

Various solutions to this problem naturally come to mind. One that has obviously occurred to some museums is to refuse to lend at all or to restrict lending to the barest, unavoidable minimum. The fact that such a way out has been taken need not necessarily be assumed to have arisen purely and directly from considerations of cost, although a realistic evaluation strongly confirms them as a strong contributing factor. Undoubtedly, concern for objects exposed to the physical hazards of transportation and handling exerts a cautionary mood in the conscientious curator. A primary regard for the object is unquestionably a desirable attitude. In the last analysis, the responsible curator, whatever his policy, must carefully weigh the dangers that lending creates. If in his opinion they do not warrant the risk, he can scarcely be blamed for refusing to take it. We all know, too, that in some instances special pieces have so firm and fixed a position in an existing exhibit that its removal would be strongly resisted.

But, when all these reasons, and others as well, are considered, there remains in well-endowed museums with a negative policy a large range of materials that might well be allowed to travel. Could it be that the growing burden has become too great? For even large museums have their serious financial problems and their difficulties arising from inadequate staffs. For such a policy to become generally necessary would, in

my opinion, be tragic. There is a moral responsibility on the part of the large museum with extensive collections to make them available for the widest possible use, without, of course, subjecting them to unwarranted hazard. Even allowing for the personal equation in judging what is a reasonable risk, much could still be converted to active use that now is all too often gathering dust.

For some time it has seemed to me that one of the elements contributing to a growing reluctance to continue liberal lending policies could be eliminated if special personnel could be assigned to assume the necessary responsibilities, so that existing functions and staff be not damaged or over-tasked. Even a relatively modest fee for handling and processing a loan would in the course of a year in a large museum accumulate sufficient funds to underwrite a budgetary allowance for a special employee. Such a fee, adjusted to the size of the loan, would be relatively small measured against the total cost of most substantial temporary shows, and would be no great burden on the show's budget. In common justice, if the museum staging a show feels it only fair to reimburse for their labor the designers, the staff, and the various and sundry people involved, as well as the packers and transporters, why should the lending museum be expected to contribute its services gratis? Several years ago, when discussing these problems with the director of a typical, middle-sized, borrowing museum and painting what I thought was a realistic picture of the plight of a lending museum with a liberal policy, I was told with a hearty laugh, "Yours is one of the 'patsy' museums." I do not know whether museums are categorized in general in this informal manner and the easy marks so identified. Perhaps my friend's comment was only partly wisecrack, but it made me think.

In what I have been saying about lending, I have had in mind essentially the need for a specific policy on inter-museum loans. There are other aspects to the whole business, many of which will readily occur to anyone familiar with museum activities, that fall outside this traditional interchange. None is, however, more troublesome than the consequences of the discovery of the museums' resources by television producers and by various types of advertising and display designers. Any museum in a large urban center, where these commercial activities flourish, will have shared the pressures by these agencies to disgorge their treasures for an incredible variety of uses. In New York, where the concentration is at its maximum, we might easily allow ourselves to become a kind of Brooks Costume establishment, furnishing props of all kinds. Because our experience has been particularly disastrous in the high proportion of damage to our specimens lent for these purposes, we have, regretfully, been obliged to restrict loans to television or other commercial borrowers, unless the arrangements for the protection of the objects while away from the

Museum satisfy us. Otherwise the attrition suffered through loss and breakage would rapidly diminish our collections. But, as we persist in thinking that our collections are being put to their best use when they can be seen and enjoyed by as many people as possible, we continue to entertain all such commercial requests for their loan, imposing, however, requirements for the safety of objects that seem justifiable. Charges, in these cases, for the time and labor involved in the selecting and processing are automatically imposed.

The Story of The Shaker Museum

ROBERT F. W. MEADER, DIRECTOR

THE SHAKER MUSEUM, OLD CHATHAM, NEW YORK

The Shaker Museum, at Old Chatham, New York, now in its eleventh year, has grown steadily in collections and in the popularity and esteem of the public. It all began with the interest in early American farm tools of Mr. John S. Williams of New York and Old Chatham, who wanted to save these evidences of vanishing Americana in Columbia County. Inevitably this brought him in contact with the tools of the Shakers, that fascinating American communal religious group whose mother community was at New (or Mt.) Lebanon, seventeen miles to the northeast of Old Chatham.

Interest in Shaker farm implements in turn led to an interest in other types of tools used by the group, so to their furniture, culture, and intricate business ventures. The collection of a few hundred items was privately exhibited first in Old Chatham village, then was moved to two small buildings next to Mr. Williams' home, Good Hope Farm, nearby.

The Shakers themselves appreciated the efforts that were being made to perpetuate the evidences of their faith and culture and provided many very valuable objects. At first the budding museum was merely a collection of things, but it was soon apparent to Mr. Williams (who is also President of the Board of the Museum of the American Indian, Heye Foundation)

Fig. 1. In 1950 most of the collections were housed in these two buildings. The right-hand one is now the Library and Museum office.

Fig. 2. The main Museum building, with the Blacksmith Shop in the right foreground. The sacred "Fountain Stone" from Canterbury, New Hampshire, is under the little canopy by the exit door; it formerly stood in the long-deconsecrated sacred grove at Canterbury.

Fig. 3. The Courtyard from the main building exit. Gift Shop at extreme left; to right, Emma Neale Textile House, Crafts Shop, and Blacksmith Shop.



Fig. 1

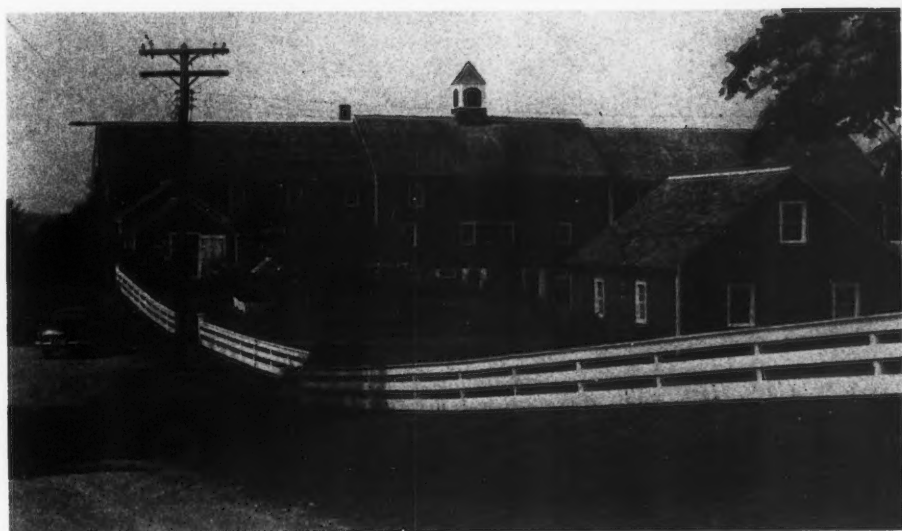


Fig. 2



that the time had come to establish a definite policy of acquisition and display. Accordingly, Mr. E. Phelps Clawson, a trained archeologist and museologist, was engaged as Director.

The first step was to rehouse the rapidly growing collection. The large dairy barn on the property was preempted and cleared out (in itself no small task!), and the exhibits were installed. Soon several small buildings were moved into the new Courtyard adjacent to the barn, rebuilt, and filled with yet more material. At the present time the acquisitions number over 11,500 items, with several hundred books, manuscripts, deeds, and pieces of music in the Museum Library. The temporary charter granted by the University of the State of New York in 1950 was changed to a permanent one in 1955. In 1959 Mr. Clawson retired, and the present writer was appointed Director. In ten years what had begun as only a small private collection of Shakeriana has become a museum of national significance, with exhibits housed in twenty-seven galleries of the main building, and with five smaller exhibition buildings and the Museum Store. Its visitors come from all over the United States and Canada, and from many foreign countries as far distant as Brazil and Turkey.

Perhaps the comment on the Museum most often heard from visitors is: "How pleasant and natural everything is!" And curiously enough this seems to stem from the very difficulties encountered in the setting up of the institution in the first place. It is not easy, obviously, to turn a dairy barn into a museum of the domestic and mechanical arts. The simple task of moving out cattle and tons of hay and grain posed a problem of major magnitude. But what about the esthetic problems that inevitably arise once such a moving has been accomplished? The task was made easier, however, by the very nature of the Shaker Church.

The Shakers were basically an agricultural group, and all their original nineteen communities (two still remain active) had vast acreages of magnificent fields, orchards, and gardens, with many huge and sturdy farm buildings and houses. They displayed the quintessence of Yankee ingenuity in the many and diverse industries that they set up to bring in the extra money needed to support their communal enterprises. They lived simply but very well. Consequently, to house their tools and furniture in a handsome and well-built barn did no violence to their own philosophy, humble beginnings, or customary environment—not, one hastens to add, that they habitually lived in barns! Further, a minimum

Fig. 4. Entrance hall of the main building. Medicine Department at rear upstairs. Foundry pattern on wall.

Fig. 5. Brother Ricardo Belden's clock shop from Hancock, Massachusetts.



Fig. 4



Fig. 5

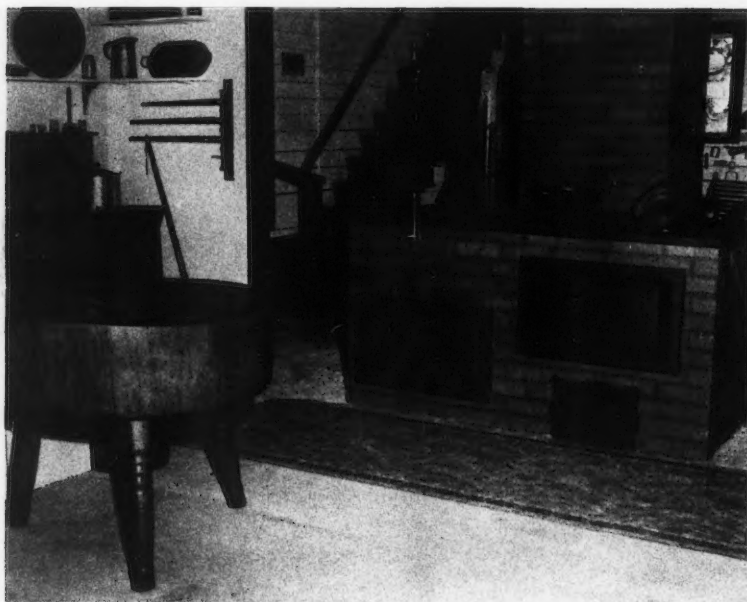


Fig. 6

of cased exhibits contributes much to visitor enjoyment and gives a yet greater feeling of verisimilitude.

A problem at once arose as to how best to display the splendid Shaker furniture. Should period rooms be set up? Whether or not to do this required an answer to two questions: what cut-off date should be used, and how physically should such rooms be built? The Folk Museums at Coopers-town¹ use 1840 as a cut-off date. The Shakers, however, are still a vital, contemporary community whose members sit in late Victorian rockers in front of a last-year's television set, with an 1815 candlestand alongside! Manifestly, any cut-off date is impractical, as well as quite unreal.

¹ See *CURATOR*, vol. III, no. 1, 1960, pp. 43-65.

Fig. 6. Shaker kitchen in main building. Cutting block from Kentucky, reconstructed stove from Canterbury.

Fig. 7. The Brother's Bedroom in the main building, showing how the room was built into the largely unchanged barn.

Fig. 8. Basket-making exhibit. Basket forms, baskets, and materials. Shaker-made bonnet and umbrella.



Fig. 7

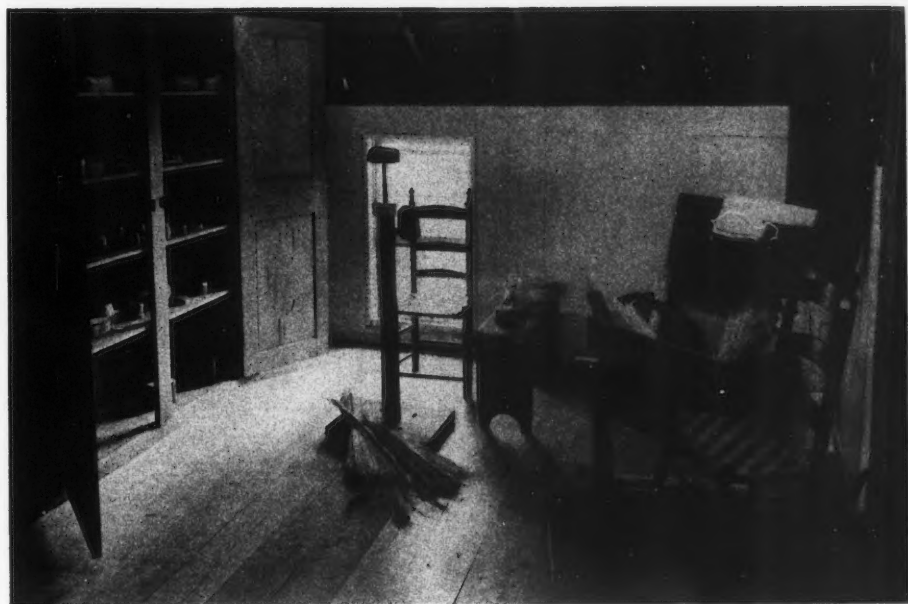


Fig. 8



Fig. 9



Fig. 10

To install any room properly requires four walls and a ceiling. Without tremendous expenditure of money, such an installation was impossible for the Shaker Museum and would do violence to the integrity of the farm building itself. It was therefore decided to install what amounts to a stage set—a “room” of three sides and no ceiling. By our leaving the barn rafters and roof boards unashamedly exposed and painting the new plywood walls a stark Shaker white, the illusion was excellent. The white walls held the eyes of the beholder within the room itself. We therefore have what Coleridge called “the willing suspension of disbelief.”

The furnishings of these rooms make no effort to duplicate those in any actual Shaker room. Rather, they attempt to give the effect of a typical room, even to the mixing of periods. The result is a feeling of actuality rather than the somewhat sterile artificiality created by a strict adherence to purity of period and reconstruction. These considerations hold equally true for the Medicine and Seed Departments, the Kitchen, the Laundry, and the various Shops.

A much more severe problem arose with regard to what we of the Museum call “The Little House.” A few years ago a building of 1820 was being dismantled at the community in Hancock, Massachusetts, and much

Fig. 9. One end of Sisters' Work Room; stairs lead to Shaker Attic.

Fig. 10. Shaker Attic. Rope bed hung on wall, chests piled below, chest of drawers to left. Note the way reconstructed Little House gable was accommodated to the slope of the barn roof. The new gable window looks down into the Medicine Department.

Fig. 11. The central part of the Museum building from the entrance of the Domestic Crafts Shop. The loom is for the making of tapes for Shaker chair seats.

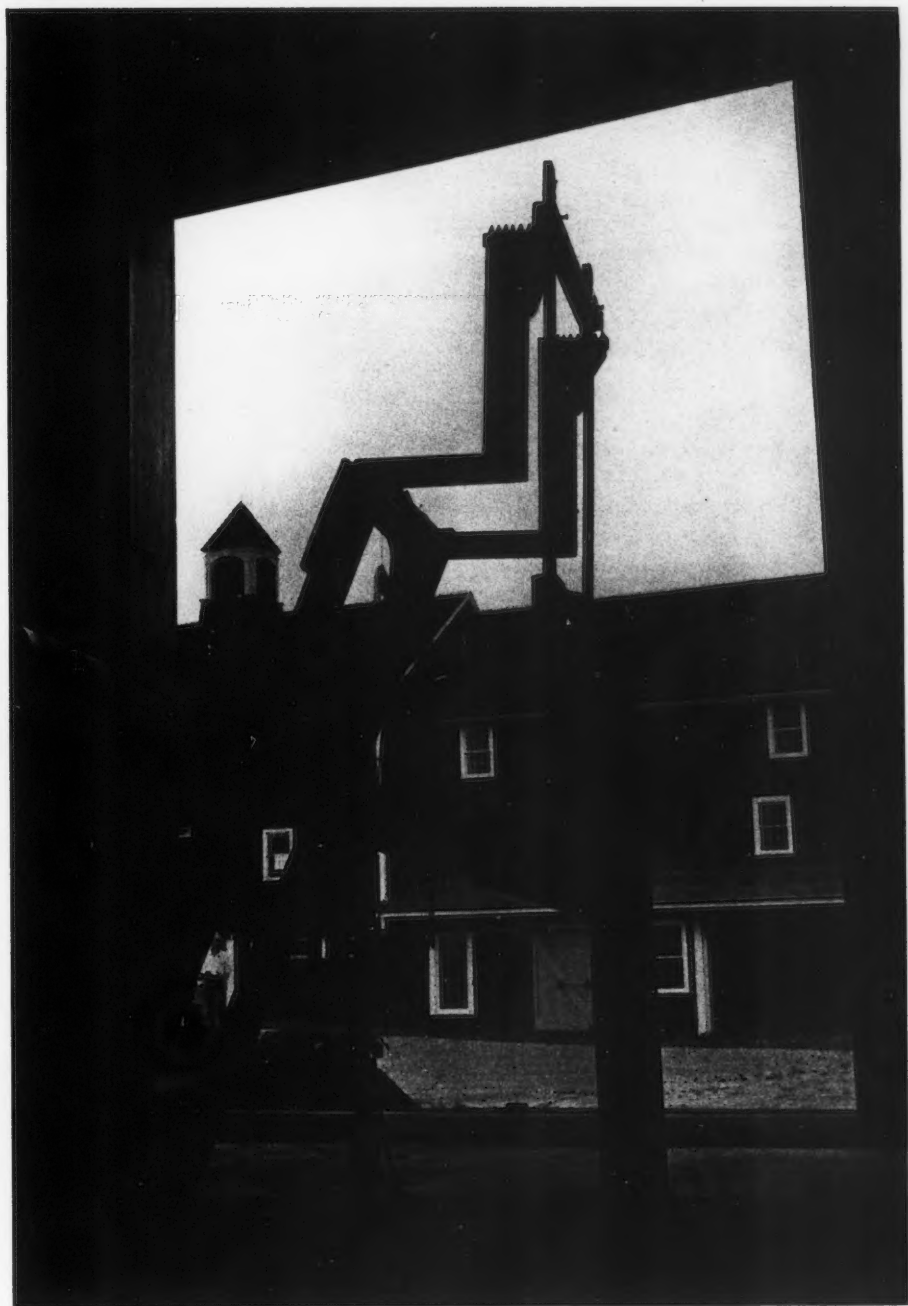


Fig. 11

siding, some windows, and a door were bought. But what to do with them? It was decided to erect, in the central section of the old barn, at that time completely open, a façade making use of this material. The clapboards had come originally from the long side of the Hancock structure; as rebuilt inside the Museum, they covered an end façade, complete with gable, windows, and entrance door. The angle of the new roof coincided with that of the barn into which it had been introduced. The illusion thus created was perfect and was typically Shaker in feeling.

The problem of The Little House was, however, but half solved, for it remained to consider the rooms to be built behind the new façade. Two rooms of 1805, from the community at Sabbathday Lake, Maine, together with plank wainscoting, wall boards, and doors, were available. Accordingly, two rooms, a hallway, and a staircase were installed; behind them, and to fill in the rest of the open space of the original barn, a long, low-ceilinged, composite shop was created, housing cobbler's, tinker's, and broommaker's facilities. But what about the second story? None had been available from Sabbathday Lake, nor was the open space under the barn rafters sufficiently high to allow such an installation. The solution was both simple and ingenious.

Over the composite shop on the main floor was created what is known as the Sisters' Work Room, also running the full width of the original barn. It exhibits the many domestic skills of the Shaker seamstresses and rug makers. While it is totally unlike any real Shaker workroom, so delighted with it were some of the Sisters and an Eldress that they insisted upon being photographed in it. Then, rising on a plane some three feet above the Work Room and over the reconstructed rooms in The Little House, is the Shaker Attic. It occupies a space otherwise unusable. Serving as it does as a storage space for furniture, baskets, and general awkward oddments, it creates in its utilitarian, ordered confusion exactly the impression of the usual storage attic. It is eminently satisfactory, and elicits comments of universal pleasure and approval. Even the presence of a huge barn winch and a single-piece, thirty-nine-foot ladder creates no disturbing influence.

The Work Room and the Attic are barred from the public by the huge beam of the barn framing. Thus the atmosphere seems natural, open, and friendly, while rare and delicate objects are safely preserved.

Fig. 12. A corner of the Carpentry Shops, showing two old Shaker-made foot lathes.

Fig. 13. Part of the Carpentry Shops. Note the way the collection of large augers is hung on a suspended rack.



Fig. 12



Fig. 13

Another reason for our making no effort to create finished galleries lies in the very nature of Shaker handicrafts. These materials are not basically artistic in concept but rather follow Louis Sullivan's dictum that form follows function. In their honesty of design and workmanship, and in their rigid adherence to utilitarianism, the Shakers indirectly created beauty but not by original intent. Therefore, to house such objects in finished galleries would have been false to the Shaker philosophy, and the results would not have been so generally pleasing.

The same unadorned simplicity of presentation has been followed in the various secondary buildings surrounding the Courtyard. The Black-

Fig. 14. Shaker schoolroom. Map on wall done in colored chalk on hanging blackboard; music board on right.

Fig. 15. A corner of the Medicine Department. The bench was borrowed from Shakers at Mt. Lebanon by Gail Borden while working on evaporated milk.

Fig. 16. Part of the Shaker Laundry. This washing machine was patented in 1858 at Canterbury, New Hampshire, won the Gold Medal at the Philadelphia Exposition in 1879, and was used for ninety years without major repairs.



Fig. 14



Fig. 15



Fig. 16

smith Shop looks pretty much like what it purports to be. Its strictly shop-like appearance has perforce been somewhat softened by the displays of foundry patterns and the products of the forge and trip-hammer. The same holds true to an even greater degree in the Domestic Crafts Shop and the Textile House. In the latter is found the greatest concentration of cased exhibits in the Museum, because of the nature and rarity of the fabrics, clothing, and other objects on display. Even the Museum Gift Shop (a remodeled henhouse) shows the same friendly informality characteristic of the entire institution.

We have now come to the point in our existence when it is necessary to cull out and to rearrange many of the exhibits. During the summer and fall of 1959, much time was given to the planning and execution of these changes. As a result five galleries have been entirely rearranged, much duplicate or less interesting material has been removed to storage, and the remainder has been arranged with proper regard to breathing space. The result of all this overhauling has been the creation of a series of exhibits that tell their story briefly and with impact, yet so arranged as to permit the more serious searcher ample opportunity to study further for himself.

To make the Museum tell its story even better, we have this year printed a single-sheet, capsule guide to the collections, a copy of which will be put into the hands of each visitor. This will ease the lecture burden on the Director and the guides, permit the public more of a feeling that they are not being shepherded from gallery to gallery, and serve as a further advertising medium, for many of these broadsheets will either be saved as souvenirs at home or be given to friends or relatives. We have found that our best advertising media are signs and word of mouth.

As it becomes better known, the Shaker Museum is visited and appreciated by an ever-widening public. Men are fascinated by the extensive collections of ingenious tools and machines, and women by the amount and diversity of the Shaker domestic crafts. Both men and women seem equally drawn to the beautiful Shaker furniture, so deservedly popular today. School children and summer campers come by the bus-load; that their interest has been genuinely aroused is evidenced by the number of requests the Museum annually receives for material for school essays. No visitor leaves without a deeper appreciation and understanding of a fascinating phase of American life until now too little known.

Why Children's Museums?

A. E. PARR, SENIOR SCIENTIST

THE AMERICAN MUSEUM OF NATURAL HISTORY

Most museums, and probably all natural history museums, welcome children to their halls. Indeed they go to considerable pains to insure that even the youngest guests shall have a pleasant and profitable visit. There are no special public museums for adults—only general museums for visitors of all ages and backgrounds, from the tiny tot in a stroller to the centenarian in a wheel chair. Knowing this, we sometimes feel vaguely puzzled as to why there should, nevertheless, have to be separate museums for children. In the rush of our other cares we may not take time enough to examine the problem critically, and so are left with the faintly uneasy feeling of an unanswered question in our minds. That the answer should seem elusive to many of us who pursue our careers in the general museums is perhaps only to be expected. But sometimes one gets the impression that even those who have dedicated themselves to the cause of children's museums may remain slightly disturbed by the elusiveness of truly adequate reasons for the existence of their museums as a separate species. It is not unusual to hear the hope expressed that a children's museum may some day "grow up" to become a general museum.

Let us examine, first of all, whether the transition from children's museum to general museum is, or ought to be, simply a matter of growing up.¹ Putting the question in another way one may ask if the large general museum should, in fact, be considered a single organism or a symbiotic association of several different organizations with separate methods and purposes, but with enough common or complementary needs to make an affiliation seem mutually advantageous, at least at first glance.

The most obvious common need is the need for collections and exhibits.

¹ The author did not see Helen V. Fisher's essay "Children's Museums: A Definition and a Credo," in *CURATOR*, vol. III, no. 2, 1960, until the present paper was in proof. A reader of both articles will find several important points of agreement, which may be taken to represent confirmation by independent reasoning from different points of departure.

But even in this we find an inner conflict. The children's museum wants expendable collections and exhibits that its visitors can handle and actually wear out in use. It is the ambition of the general museums to display such unique and irreplaceable treasures and such superb and costly examples of the preparator's art that it becomes permissible only to admire the exhibits at a respectful distance, behind a protective shield of glass, or under close surveillance of human or electronic guards. This difference is actually quite fundamental. It brings out the fact that, regardless of what special consideration we may give him, a child in a general museum remains a visiting spectator at an adult show primarily designed for a less active age of spectator sports. This does not mean that a child does not enjoy or benefit from a visit to a general museum, any more than an adult can fail to learn and to derive pleasure from a good and active children's museum. Young or old, we are always fascinated by the interests and doings of the other generation and learn a lot from them. But our mutual fascination does not alter the basic differences in our ways of living and learning. What has happened in many of the large general museums offers perhaps the strongest testimony to the real difficulties of trying to serve all ages in a single operation.

Within New York City alone, we can find three very different examples of how its large general museums or the community that supports them has tried to meet the museum needs of both children and adults without sacrificing one for the other. In The American Museum of Natural History, which seems to have been the first institution to take practical steps in the matter, a Department of Public Instruction, with a staff of some twenty-odd teachers, functions quite independently of the curatorial departments and with equal status. Although the Department of Public Instruction also engages in some adult education, its primary duty is towards children of elementary and high school age. The teaching is based on the public exhibits of the general museum, but these are also supplemented by the department's own expendable collections, which are used for demonstrations and lectures. The Department of Public Instruction of The American Museum of Natural History may be described as a separately organized function of the parent institution, but not as a semi-autonomous subsidiary.

The Metropolitan Museum of Art has gone a step farther by establishing what virtually amounts to an institution within an institution in the form of a Junior Museum,² operated by the Department of Education and Extension. This Junior Museum has its own exhibition halls and functions more or less as a complete unit in itself, although visits to the general halls of the museum are, of course, included in its activities.

² See "A New Junior Museum" by Louise Condit, *CURATOR*, vol. II, no. 1, pp. 1-20, 1959.

Our third New York example comes from the Borough of Brooklyn. The Brooklyn Museum of today is a general museum of art which originally also included natural history. As the general museum evolved and changed its scope, the community took over the problem of the special needs of children by establishing the Brooklyn Children's Museum³ as a separate institution in a separate but not distant location.

Finding that a special staff and program for children—a museum within a museum—and a separate children's museum have all developed in, or in the presence of, a general museum naturally gives rise to the thought that it may be even more logical for a large general museum to hope to grow up to become a parent or partner of a children's museum than it is for a small children's museum to hope to grow up to give birth to a general museum that may provide for the old age of its proud progenitor in a nice department of its own.

Such a diversity of arrangements within a single city also points up the problem of finding the best relationship between children's activities and the functions of a general museum. The practical advantages of a very close association are so obvious that they scarcely need to be mentioned. They include the availability of a more or less steady stream of surplus collections that can be treated as expendable materials for teaching, and of expert information up to a certain, actually quite limited, level of demand. Much less has been said about the practical disadvantages that are beginning to be heavily felt in some of the larger institutions. Some of these arise from purely quantitative rather than qualitative considerations, having to do with the number of visitors and the size of the institution.

As the total number of visitors grows, the competition for space is made more unpleasant by natural or imposed differences in the behavior of children and adults. One of the problems is the tendency of children to respond to increasing numbers of their own kind by increased noisiness and other forms of physical excitement. This can be observed wherever children gather together in groups, whether it be on a playground, at a birthday party, or in a museum. The knowledge that the noise does not spring from unkind or impolite intent does not lessen its distracting effect upon adult visitors, who may enjoy the exuberance of the children but will find it extremely difficult to pursue any serious interests of their own. It is quite true that the tendency towards noisiness and physical agitation among the children differs quite markedly from country to country, probably in direct relationship to differences in the generally prevailing attitude towards introvert or extrovert behavior at all ages, in different cultural traditions. It is also true, in theory, that needless noise can be

³ See Helen V. Fisher in *CURATOR*, vol. III, no. 2, pp. 183–191, 1960.

avoided. So can many forms of death that still continue to claim their victims, although the incentive to avoid unnecessary death should presumably be much stronger than the incentive to avoid unnecessary noise. Some control can be exercised, particularly over the groups or classes that come under the supervision of the museum's own teaching personnel. But in an institution freely open to all, complete control is impossible, and the number of decibels increases with the number of young visitors, especially those who arrive in groups, of whatever description.

The problems created by the natural liveliness of youth are further complicated by conditions imposed upon the child as a museum visitor. In a metropolitan area the vast majority of the children visiting the museum come in classes or other forms of organized groups, with one or more adult leaders. The hazards of travel through a large and crowded city will, to most parents, make it seem quite inadvisable to send a child off on its own on a visit to the museum, unless it should be very near by. If for no other reason than this, organized groups become the predominant pattern for the presence of children in our exhibition halls. At first thought one might hope that this would be an ameliorating circumstance. On the contrary, it aggravates the problem. One hundred children filtering through a large hall one by one, or by twos or threes, do not disturb the usefulness of the hall for other visitors, any more than would an equal number of adults. But the same number of youngsters trooping from exhibit to exhibit around the same hall, in three compact formations of thirty to forty in each, make it virtually impossible for others to maintain any continuity and reasonable concentration in their own contemplation of what is shown. A clever and tactful group leader may reduce some of the objectionable aspects of group movements through museum halls but introduces others. A voice that must reach thirty or forty children cannot be excluded from the ears and minds of the ten or fifteen adults who happen to find themselves at the same spot in their progress through the museum.

In this century of the child and of the average man, there finally often develops, among those responsible for groups, a tendency to try to exercise a right of eminent domain in favor of their flock. This is true of all types of conducted tours. But in a museum actively promoting the organized education of the young, groups of children usually far outnumber those formed by adults and therefore present more of a problem. Being asked to give ground to a group before an exhibit in which one has a real interest is an experience that may be had on either side of the Atlantic, whether the request be put in simple words or less politely expressed in oblique remarks and glances.

If the detriment to adult visitors was always fully compensated for by benefits for the young, there would be less reason to object. In a large

museum this is, unfortunately, far from being the case. Out of moral obligation as well as necessity (at least diplomatic necessity), such an institution must exhibit far more than a group of children can profitably use in a day's visit, without merely developing mental constipation. If exhibits of the kind and quantity that visiting classes can use with maximum benefit are not gathered together and set up separately in a museum within a museum, at least, it follows that the groups wending their way between the displays selected for their attention must make long, fatiguing, and confusing journeys through exhibits that have no bearing on their lesson for the day, distracting and frustrating others en route, without benefit to themselves.

The existence of a real conflict between the child's need for a limitation of focus and the extent and diversity of the adult interests that must also be served by a general museum receives a left-handed recognition from the most ardent advocates of complete intermingling of exhibits and activities for children and for adults. The introduction to "Museums and Young People"⁴ is described in the foreword as a most important chapter that "harmonizes and fills in the legitimately varying points of view of the other three writers." Nevertheless the introduction reveals its bias even before the start, by listing as its first chapter heading in the table of contents: "1. The Danger of Separate Children's Museums." There are neither headings nor subheadings dignifying a cursory treatment of the arguments put forward by those in favor of such institutions. This introduction will be quoted here at some length, because the present writer agrees that it is an important document, as stated in the foreword, and also a very revealing one. On page 4 we learn that the opponents of separate children's museums "admit at the outset that most existing museums are unsuitable for children. They are, however, equally unsuitable for adults—and for the same reasons. The setting up of separate Children's Museums therefore avoids the real issue, which is, how to change existing museums so that they become useful to adults and children alike." This statement, of course, expresses a very commendable ambition to which one could not take exception. But the claws begin to show on page 16, under another telltale heading: "Exaggerated Logic and Comprehensiveness in Exhibitions." We are told, among other things:

We have already referred to the sense of achievement and satisfaction that can come to a museum visitor, and particularly to a child, who feels that he has worked through an exhibition and mastered its material; and yet this is a satisfaction that is very rarely catered for in museum displays. The paradox of the situation lies in the fact that this fault can usually be

⁴ Three reports by Germaine Cart, Molly Harrison, and Charles Russell, with a foreword by Georges-Henri Rivière and an introduction by Peter Floud; published by the International Council of Museums in Paris, 1952.

traced back to precisely this same need for completeness on the part not of the visitors, but of the arrangers of the exhibition. In fact, curators are allowed to indulge their own need for complete and comprehensive exhibitions, even if this means, as it almost certainly will, that the spectator is deprived of any chance of that rounded, digestible, self-sufficient exhibit, that would satisfy the same need in him.

The plot thickens as we go along, and on page 18 we learn:

How much more satisfactory, however, even for school parties, are those general museums where the existence of miscellaneous collections has been used by the curator as a justification for dividing the galleries up into a number of *unrelated*, but compact, exhibits, each centered round some set of specimens in which the collections happen to be rich. Some fossils which would otherwise be thinly spread out in a vain attempt to represent the whole field of paleontology, are instead collected into a small exhibit illustrating "What are Fossils and Where to Find Them"; similarly, stuffed animals are no longer ranged along the walls in an effort to reconstruct the "Story of Life", but are used in small groups to represent such ideas as "How Animals Get Their Food." (Italics mine.)

We are also told that the compactness of such unrelated exhibits "will satisfy that sense of having learnt all about some subject—*however small*—which is such an important element in the enjoyment of learning," and that we must "get away from the over-logical, over-comprehensive, approach" which has been criticized, and must succeed in rearranging our collections "in more self-contained and *digestible* units." (Italics mine.)

The tenor of the argument is now clear. Because so many museums admittedly have failed or lost ground in their efforts to reach and to serve the not uninstructed adults, they should abandon the attempt and devote their possessions and their skills entirely to the service of the children and the "uninstructed." They must not try to teach anything that cannot be compressed into compact, digestible pills that can be swallowed in a single session. The great ideas and principles must not be taught because they might require several visits to the museum before they are understood, just as they might require several sessions in class or several lectures in college. Let us not tire our visitors by trying to show them the broad panorama of how all things are related in nature. Let us be unrelated. Let us tell not the story of life, only the story of how the squirrel gets its nuts. And, by all means, let us not bore our audience by exposing it to the rigid logic of science that governs both the structure and contents of all our scientific knowledge. The trouble is, of course, that one cannot be just a little bit logical, any more than one can be just a little bit pregnant.

Up to this point we have referred to the International Council of Museums report only to prove, in the words of the opponents of separate children's museums, that there is a very real conflict between the needs and methods of visual education for children and the form of presentation

in which a large museum must try to make its information available to an adult public with broader and more varied interests, wider perspectives, and greater concern about the larger issues of the world around them than can easily be compressed into convenient pills for small stomachs. Because the existence of such a conflict would favor at least some sort of separation between the elementary and the more advanced educational exhibits, as well as functions, of the museum, the opponents of separation try to solve the dilemma by the simple expedient of arguing the general museums out of their broader missions. But this would scarcely be meeting the real issue, either.

It would be difficult to deny that the possession of much knowledge imposes an obligation to teach much. It does not matter whether the knowledge possessed is already reduced to the symbolic forms of language and mathematics, or is still represented by the original objects and materials from which it was derived, as in a museum collection. A museum with great collections and a great staff, therefore, has a moral obligation to maintain a large and educational exhibition program, which cannot be limited by the lowest common denominator of digestive capacity among its visitors. On the other hand, everybody should have the right to learn as much as he wants and is capable of, whether his limitations are temporary or permanent, due to age, experience, education, or intelligence. In order to deal with the question of how and where to teach what to whom by museum exhibits, we must first establish some premises and definitions, with apologies for following such an over-logical procedure.

As a first premise let us agree that there is no escape from the importance of providing for the education of children by museum methods. Second, let us see if we can agree on the proposition that it may be equally, and possibly even more, important to provide for adult education in the same way. As often emphasized by Robert Maynard Hutchins, the pace of history has become so rapid that we can no longer wait for the results of a better education for our children to take effect at the polls and in the seats of power. We must also, by means of adult education in all its varied forms, use every opportunity and every effort to provide for the greater enlightenment of those who are today determining the fate and managing the affairs of nations by their votes and by their deeds. With millions visiting their exhibits annually, the museums have an exceptional opportunity to contribute to this cause in a painless but effective way. If we agree that the opportunity creates the obligation, then we shall probably

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Fig. 1. Public school classes in The American Museum of Natural History, Hall of Forestry, 1915.



Fig. 1





Fig. 2A



Fig. 2B



have no difficulty in agreeing on the third premise, namely, that the adult education for citizenship most urgently needed today is not of a kind that a hundred unrelated topics will provide. On the contrary, a better understanding of the universal interrelations between all causes and events must be the most important target for our efforts. This is not something that can be compressed into small, self-contained doses as equally digestible and enjoyable for children as for adults. Age differences in mental orientation are as important in this connection as are differences in general level of knowledge.

As our eyes grow more farsighted with the passage of time, so do our minds. To a small child, the object in hand, or in view, is all that matters. There is nothing beyond today and nothing beyond the horizon. In fact, there is not even an horizon. The remote, the potential, and the abstract hold no interest. It has become axiomatic that the teaching of children must start from the visible and tangible things of their limited daily experience and cannot move far beyond permutations and recombinations of such experiences. As we grow older, thoughts and information communicated to us in the symbols of language play an increasingly important role in our own life experience. Our interests expand beyond the merely visible to include also that which can be visualized. And we look farther ahead. The infant does not think of tomorrow. The child beginning to note recurrent events in the family life around it may have plans for next week or next weekend. Then follow thoughts of next season. The teenager may worry about the next year or two, about grades and admission to college. At the beginning of one's career the next five years seem terribly important, but time beyond that still seems in the realm of the abstract. The young parents make plans for a decade or two, for mortgage payments and children's education. And the grandparents try to divine the fate of future generations. As a result we may find that the problem or situation that seems too remote to engage the attention of the child may be the one with the most pressing immediacy in the minds of the adults.

Related to the progressive widening of horizons, both in space and in time, are several other factors that the museum exhibitor must also take into account. One is the far greater diversity of interests among adult visitors than among the children, who, in this respect, constitute a rather homogeneous group. In countries with compulsory education laws, everybody has approximately the same educational background up until the age at which the minimum legal requirements have been fulfilled. As

Fig. 2. Small single classes before exhibits in The American Museum of Natural History. A. In the Hall of Minerals, 1928. B. Before a bird exhibit, 1936. C. In the Hall of North American Mammals, 1956.

← Fig. 2C

compulsory education greatly reduces, if it does not entirely preclude, child labor, there is also less opportunity for diversity of outlook in the very young resulting from practical experience. This does not deny the great psychological differences that exist even among the youngest. But we are here concerned only with the circumstances that determine orientation of interest, level of knowledge, and capacity to learn in various subjects, and these circumstances are, despite all differences in home environment and so forth, far more uniform before the completion of compulsory educational requirements than they will ever be again. For many, practical experience begins at once in an almost endless variety of jobs and tasks. For others, formal education continues, but no longer on a single track for all. Aspiring lawyers, doctors, bankers, scientists, teachers, engineers, and many others pursue their different courses through our institutions of more advanced education.

This expanding diversity of interests and experience in the adult population can be served only by a diversity of exhibits, which will be both quantitatively and qualitatively exhausting to a young child who has not developed the adult's self-protective ability to select and exclude but responds with indiscriminate curiosity to all new first impressions, even though it does not sustain its attention to things remote from its own experience. Coupled with the selectivity of the adult is a sense of proportion, or of importance, which the museums might well pay more attention to than most of them have done in the past. To a child, a knowledge of how the squirrel gathers and keeps its nuts is of real importance. To an adult, it may seem amusing and certainly unobjectionable, but it would be very hard to convince him that it is also an important thing to learn. On the other hand, any adult literate enough to read the daily newspapers will immediately recognize the value of knowing something about the natural resources of China, which would scarcely fascinate a child.

Quite apart from the needs of good citizenship which gave us our third premise, we now find, as our fourth premise, that the normal and natural interests of adults as private individuals also require a scale and kind of exhibition that does not offer the best chosen intellectual diet for a child.

On the basis of these premises, it is obviously impossible to set as the ideal goal of museum efforts the creation of a single series of exhibits that will simultaneously serve children and adults equally well, for these would be not the best exhibits for either age group but only the best compromises between their conflicting needs and much inferior to what could be done for each separately.

The thesis that has just been advanced is, of course, objectionable to the opponents of separate museums for children, and it is necessary to examine the arguments that are marshaled against the conclusions here arrived at. On page 4 of the International Council of Museums report we read:

If an antithesis is made between the needs of young children and the needs of scholars and research workers, it is indeed possible to build up a case for separate museums; but such an antithesis is misleading, for a museum which caters only for research is not (except in the case of specialized University Museums) fulfilling its responsibilities. The really significant comparison should be between the needs of children (and particularly of adolescents) and the needs of the uninstructed general public; and it will be found that these needs, so far from being conflicting, are almost identical.

It would seem that contrasting the needs of children and of scholars is misleading, but an antithesis between the "uninstructed general public," also referred to as the "uninformed visitors," and the scholars, disregarding all levels of knowledge between the two, is perfectly in order. It would obviously tremendously weaken the argument against separate museum facilities for children to have to recognize the presence in modern society and among museum visitors of a large body of far from uninstructed but rather well-educated and well-informed laymen, who may quite possibly represent the most important audience for the messages of a general museum. With the rapidly growing attendance at colleges, universities, and other schools of advanced education this segment of the general adult public is increasing by leaps and bounds. Any conclusions based on the assumption that we merely have to make a simple choice between the needs of children and other uninstructed on one hand and the needs of scholars on the other therefore rest on a fallacy that will become more glaring with each passing year.

The statement quoted above also introduces another element of confusion. In a discussion specifically concerned with children's museums the emphasis is suddenly placed on the adolescents. This extends the age of the group to twenty-one, if not more. As no one has suggested excluding adolescents from instruction in the general museums, their injection into the debate can serve only to create a spurious diversion. There is, in fact, hardly anything for us to discuss if, on one side, we are primarily concerned with adolescents rather than children and, on the other, only with the "uninstructed" adults and not with the well-educated lay public. But this leaves the question of what to do about the children and about their not uninstructed elders entirely unanswered. Perhaps a lack of clear definitions has something to do with our difficulties.

What we have talked of as "general museums" is consistently referred to in the introduction to the International Council of Museums report as "adult museums," although there is not the antithesis between these museums and the children's museums that such a terminology would indicate. Actually, we are directly concerned not with questions of age, but with personal characteristics that are more or less correlated with age, without being rigidly determined thereby. It therefore becomes necessary to decide

whether we should really be discussing children's museums as opposed to general and adult museums, or elementary museums for all ages versus museums of secondary and higher education.

One of the sources of our problem is differences in general physical behavior, and in specific behavior during the process of learning, which cause one group to have a disturbing and distracting influence on the other. These differences are fairly closely associated with differences in age and make it a virtual necessity to separate the teaching of children from the education of adults, for the same reason that a well-designed home for those who can afford it rarely combines the children's play and work room with father's study or mother's sitting room.

The second set of more or less interrelated personal factors has to do with the fund of knowledge already acquired, the willingness and ability to acquire more, and the scope and orientation of interest towards and within the subjects taught in our museum exhibits. In these traits of personality are integrated all the effects of individual experience, which, in turn, is a product of the passage of time and of the manner and circumstances in which the time has been passed. Here, also, we therefore find a strong correlation with the age of the individual.

When the introduction to the International Council of Museums report speaks of the "uninstructed general public," it would seem that this is to be taken not as a polite circumlocution but rather as a deliberately one-sided expression, particularly well chosen for the purpose of trying to identify the museum needs of the majority of real or potential adult visitors with the museum needs of children. If words such as "inexperienced" or "immature" or any number of others had been added or substituted, the entire argument would break down. Actually, the amount of instruction received is, in spite of the wistful conceit of educators, only a very minor factor in the mental metamorphosis from childhood to maturity. To be sure, an adult's fund of knowledge in a subject entirely new to him, that is, a subject with which he has not previously had any practical, educational, or recreational contact at all, may be no larger than that of an untaught child. But, unless he is also mentally subnormal, an adult's orientation towards a subject of which he is as ignorant as a child will still be entirely different from the approach of a child. Memories of experiences a child cannot have had will always give the adult a different sense of values, a different focus of interest, and a different emotional response to the unfamiliar. In the mind of any normal adult, there will also always be a general store of knowledge, acquired from life or by instruction, which makes the problem of eliminating specific areas of ignorance by further instruction a very different one from that of meeting the insatiable curiosity springing from the general ignorance of the inexperienced as well as uninstructed child.

The opponents of separate museums for children also seek specious support in the discouragement to children of having to pursue their quest for learning on separate premises. But, granting that it must be very humiliating for the nursery school pupils not to attend university lectures for their education, one can still find ample reasons for keeping college and kindergarten separate, with little fear of traumatic effects upon the young. On the other hand, an "uninstructed" adult who "may well be oppressed by a sense of frustration, and even of guilt, at his own ignorance"⁵ could easily suffer disastrous effects on his entire attitude towards adult education if he were to be directed into a predominantly juvenile environment even if he was not told to join the children in their activities.

Regardless of what aspect of the problem we consider, it becomes evident that even the most elementary education is not the same, nor does it mean the same, to children and to adults. The materials, methods, and environment of teaching must therefore differ accordingly. In the words of Helen V. Fisher, a children's museum is not a miniature adult museum, nor a junior version of one.⁶ Through this reasoning we are led to the conclusion that children's museums strictly for children, rather than museums of elementary education for all, separately organized and equipped as museums within museums—or entirely set apart, but preferably affiliated with a general museum—offer the best solution for the perplexing problem of conflicting manners and interests between the youngest and the slightly older. Under this concept, elementary education for adults and secondary education for adolescents would both be functions of the general adult museum, carried on by special units of the museum teaching staff. With a close affiliation between a general museum and a children's museum, dual roles for many teachers could result in economies without in any manner obfuscating the educational separation between the two institutions.

One more argument remains to be brought forward in favor of separate children's museums, but in the meantime so much has been said against trying to combine education for children and adults in a single package that our discussion might possibly have given rise to a suspicion that the author of these remarks is secretly—and perhaps subconsciously—simply arguing for a postponement of the child's membership in the museum audience until it is a child no longer. Let us therefore briefly review why children's education must always remain a primary concern of all museums, regardless of how they may divide the labor among themselves.

Actually the museum's greatest potential contributions to the good of society and the individual are in the least-postponable aspects of educa-

⁵ International Council of Museums report, p. 5.

⁶ *CURATOR*, vol. III, no. 2, p. 184, 1960.

tion for future citizenship and personal happiness, because they are primarily concerned with the development of the mental attitudes and habits of reasoning that are essential for the achievement of true knowledge and understanding and only very secondarily with the mere accumulation of specific information for use in the daily routines of existence.

We all begin life with a completely egocentric orientation towards our environment and all that befalls us. But, apart from our egocentricity, we are blessedly free from mental and emotional prejudices, for lack of opportunity to have become otherwise. Through the early years we develop our opinions, inclinations, and emotional attachments on the basis of what we learn and experience. As our minds become more and more cluttered with preformed opinions and already established associations of ideas, it becomes increasingly difficult for us to derive new opinions from new facts, and we tend more and more to apply, instead, the opinions we already hold to whatever new facts we may learn, often ending by choosing to recognize only the facts that happen to harmonize with our habitual thoughts and feelings.

Each new experience gives rise to an association of ideas. Repeated experiences lead to the formation of opinions and propensities. To try to perpetuate the open mind of complete ignorance with which we are born would be both impossible and undesirable. It is unavoidable that all of us will develop fairly permanent attitudes towards knowledge, long before we have finished with the acquisition of knowledge that continues to the grave. This is why we can claim, without fear of contradiction, that the development of proper habits of thought and feelings is the least-postponable aspect of education. The negative open-mindedness of emptiness must be converted into reasoned objectivity, feelings must be given adequate scope and orientation, and prejudices must be balanced by counter-prejudices before the pattern hardens. The importance of museum services for children springs from the great role they can, and often do, play among the early influences that largely determine our responses to all later education and training, and to life itself.⁷ Such services must not be withheld. Among the many areas of thought and action in which their influence could be felt, there are some that seem particularly important today.

In these days of stress and uncertainty there is a greater need than ever before of a dedicated, but not fanatic, patriotism, capable of accepting and offering criticism without loss of faith and devotion. Such a love of country and nation must be implanted early if it is to take strong roots. But a child's restricted mobility and limited powers of correlating experiences far apart in space or in time force us to rely to an ever-increas-

⁷ See also Helen V. Fisher in *CURATOR*, vol. III, no. 2, sect. III, pp. 186-190, 1960.

ing degree on vicarious experience, knowledge gained at second hand, and understanding derived from condensed abstractions of a too extensive reality. This is particularly true of large countries with a great diversity of people and places within their boundaries, so that no local landscape or community can adequately represent country and nation as a whole to any onlooker, be he young or old. Films, television, and other media of mass communication may contribute in their impersonal way, but society has yet to devise institutions that can serve the need of personal, though secondary experience for children to better effect than a well-planned and well-conducted children's museum. Through objects and exhibits of natural history, the child can get a first glimpse of the grandeur, beauty, and fascinating possibilities of a country too vast to be encompassed by direct experience at his age, if ever. Collections of history, art, and technology may stir his imagination as echoes of the struggles and achievements of his people.

In this connection it will be well to remember that history never ends. Today is as much a part of it as yesterday ever was. To avoid the impression that a museum is always looking nostalgically towards the past, and for the sake of the message it brings to the children, it is important to bear in mind that our seafaring did not end with the "Flying Cloud" running before the wind under full canvas, nor was the last textile woven on a hand loom. Of course, the museum must always be grateful for the steady stream of "fine old things" it continues to receive out of genuine generosity or a simple desire to clean up the attic. But it might be helpful to let the donors know that fine new things would be welcome too.

A very young child may have very strong emotions but starts in life without emotional prejudices. It gives its love or its hatred according to the pleasure or pain it receives from the individual object of its feelings, without regard to creed, color, or any other secondary considerations. It does not generalize its sentiments into group prejudices, and it is doubtful that it ever would if left to its own experiences, except in the case of an actually existing collective hostility, as between antagonistic species in nature. The irrational prejudices that plague the world today are inculcated quite early in life by others, perhaps only slightly more advanced in years, perhaps of the older generation—usually by building upon isolated events of actual experience but of no collective significance. To offset the unfortunate influences that may be present in his own immediate social environment, the child needs another source of communicated knowledge to relate to the facts of his own direct experience, or to substitute for the lack of it. Ethnographic exhibits and demonstrations may open his eyes to the great history and fine achievements of people different from ourselves, both within and beyond our own country, before petty events and poor advice blind him to all that is good in anything alien.

Museum services for children have much to offer towards the creation of better social and international relations at all ages.

The need for more scientists and for a better public understanding of science has become a national problem. While it is true that dedication to the quest for knowledge and understanding is not the only motivation that ever led to a scientific career, it is also true that the vigor of the scientific community is dependent largely upon the ardor of those who are driven by an inner need and devotion in their search for the truth. But such feelings are attributes of personality that must be implanted very early in life if they are to take a firm and enduring hold. Regardless of all specific knowledge that institutions of more advanced learning may have to impart later in life, a museum that reaches the child in its early years may still be the most important element in the creation of a scientific career.

Persons who work in separate children's museums often express concern that they can show so very little of all that there is to be shown in the sciences, arts, and humanities. But this is true of all forms of elementary exposition, whether by the printed word, lectures, or exhibits, and is no reason for despair. The main task is to arouse curiosity, not to answer all questions. It might well be said that a museum that stimulates no more curiosity than it can satisfy would be a very dull place indeed. Because the teachings of a museum are presented not primarily in the abstract symbols of language that are the main tools of the class room, but by demonstrations of the actual or reconstructed evidence from which our knowledge of nature is obtained, museum exhibits also afford an opportunity for the child to make its first acquaintance with the deductive method of science from the moment that the first seeds of scientific curiosity are planted in the mind. It would be very difficult to find a potentially better and more effective agency than a children's museum for stimulating future careers in science.

With our growing life expectancy and our increasing use of mechanical power and machines to replace or extend the work of human hands and minds, the problem of what to do with our spare time is reaching dimensions never before experienced in human history. From all we can tell today, it seems unavoidable that developments must continue on their present course at a rapidly accelerating pace. As less time becomes needed to sustain life, more time should become available to enjoy it, if we know how. Today it is still considered mainly a problem for the elderly, and sociologists are hard at work devising happy avocations for those who have ceased having vocations. Tomorrow it may be a problem for all ages. However that may be, there can be no doubt that the best time to prepare for leisure in later years is during the leisure hours of childhood. To one who never learned at a tender age to read a good book, or to enjoy the pleasures of music, art, philosophy, or the study of nature, it is likely to be

more disheartening than encouraging to be advised to do so in later years, just as a man who never discovered the fun of fishing in his teens is likely to be more insulted than pleased if told to do so in his sixties. Again it would be difficult to find a better place than a children's museum for exposing the children to the pleasures of occupations that can be enjoyed until the end of life. We cannot all become scientists, artists, or historians. Society also has too many other jobs to fill. But we can all find interesting pursuits for our spare time in the sciences, arts, and humanities, which will help to provide for happy individual lives of mental and physical vigor and contribute greatly to the soundness of society and nation.

The development of love for country and nation, of tolerance and international understanding, of future scientists and scientific policies, and of solutions for the problems of increasing leisure are only four outstanding areas in which museum services for children have an invaluable role to play. There are other areas also, but these should suffice to show beyond doubt the importance of continuing to maintain, expand, and improve the services we offer to the youngest regardless of the difficulties entailed. We may therefore return to our discussion of how to meet the needs of the children, which we left with the choice between museums within museums and separate children's museums still somewhat in abeyance. Actually, this is scarcely a real choice.

In a large metropolitan area, a visit to its central museum will generally involve travel beyond a child's capacity to undertake alone, and beyond parents' or teachers' time, energy, and inclination to do very often. To serve its purposes well, the museum should be part of the child's regular if not daily experience and not merely the goal of special grand excursions on rare occasions. On the other hand, the scale of the central institution is likely to be far beyond the needs of daily use until a broader and more mature knowledge of its subjects has been gained. The obvious solution would seem to be the creation of local branch museums for elementary levels of education, ideally guided and provided for by the knowledge and collections of a central parent institution, but entirely autonomous in their daily functions. At the same time as they would greatly expand the museum's services to the public, these branches would also lessen the central institution's burden of overcrowding and incompatibility, not merely by taking care of the youngest visitors elsewhere, but also by the opportunity they would provide of acquiring some museum experience and sophistication before the invasion of the larger establishment.

If elementary branch museums are desirable in other neighborhoods, it would obviously be entirely inconsistent to banish them from the vicinity of the general museum. A children's museum within a museum would therefore become a logical part of the community-wide system and a convenient pilot plant for the development of methods and materials

usable in all the branches. If the idea of many branch museums in a single community should seem highfalutin, one need only recall the branch system of the public libraries, and the fact that there are cities of fewer than 100,000 people with more than half a dozen first-class museums. Even a dozen branch museums in an urban community of several million would hardly be out of proportion.

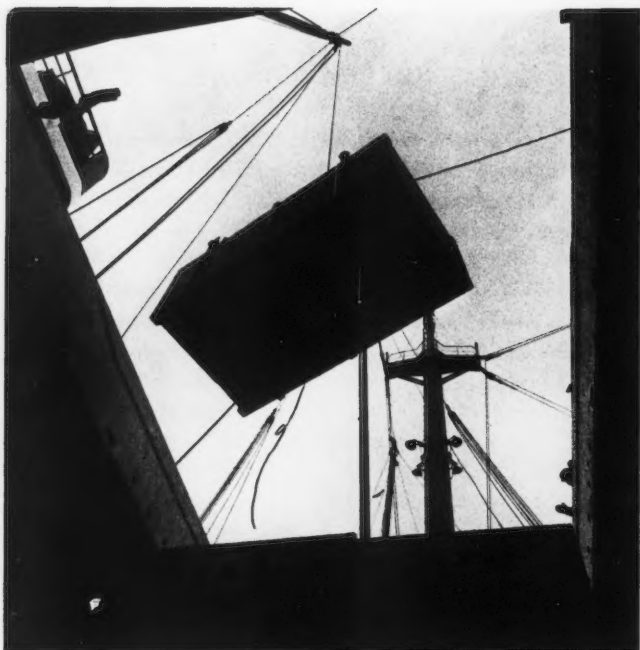
Because the exhibits of the elementary branch museums would not be extensive enough to discourage the "uninstructed" adult with their display of erudition, any more than they would exhaust the unsophisticated child with their variety and abundance, the objectionable need to separate the scholastic sheep from the goats among the adults would not exist in the branch establishments. They could therefore also serve during evenings and weekends as family museums without embarrassment to old or young, in a manner in which a children's department or a junior museum within a museum cannot. If this should seem harsh on the "uninstructed" bachelors of the neighborhood, we can only repeat the old retort that it is impossible to please everybody.

New Skies for New York

Last January, The American Museum-Hayden Planetarium installed a new Zeiss projector, replacing a veteran of twenty-five years of continuous service. The old projector, one of the pioneer installations in this country, was beginning to show signs of age—noisy gears, unsteady motion, and diminishing clarity.

Designed and built in Oberkochen, West Germany, the new instrument was assembled in the Planetarium in less than a month. CURATOR'S photographers record here its arrival and installation from the moment of unloading until its last star had been fixed in the firmament.





Unloading the thirteen crates from the S.S. "Birkenstein" in Brooklyn.



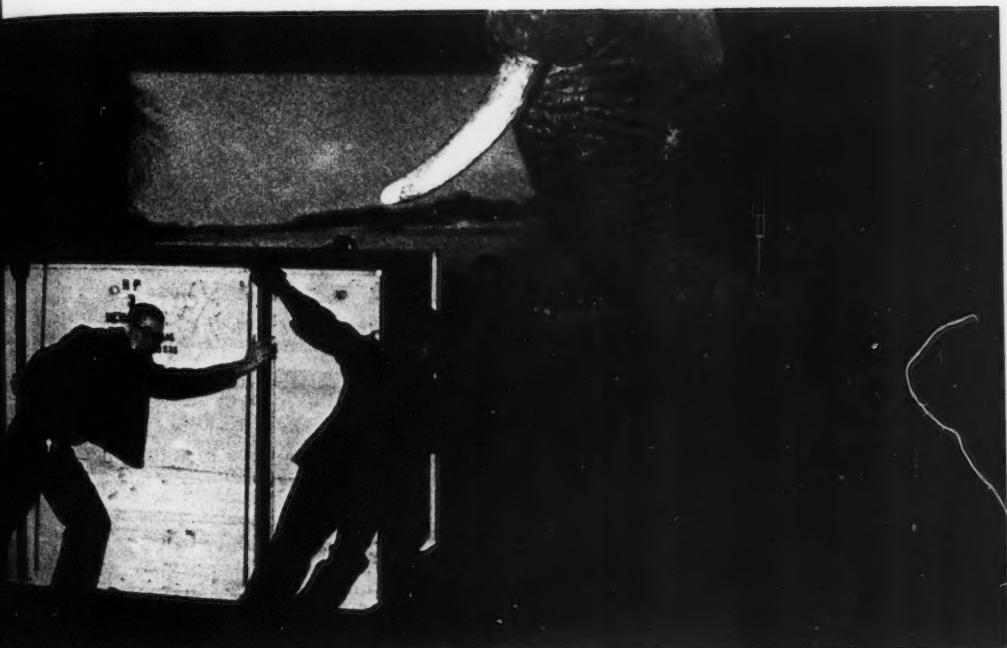
From freight elevator to Planetarium



The motor, weighing 1½ tons, emerges from its crate.



Sorting out the maze of wires in the floor below the



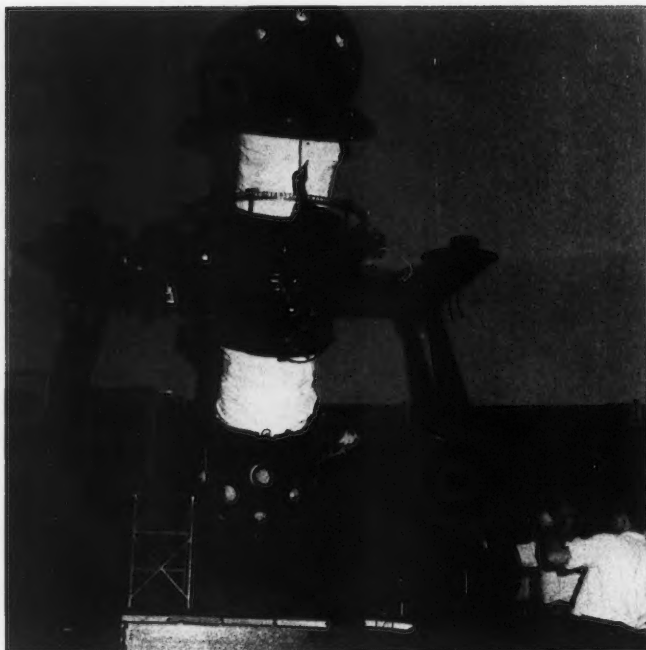
through exotic surroundings—the Hall of African Mammals of The American Museum of Natural History.



platform of the new projector.

Checking the projector just before the projection spheres are attached.

CURATOR



Bandages swathe projector arms to protect the open gear workings.



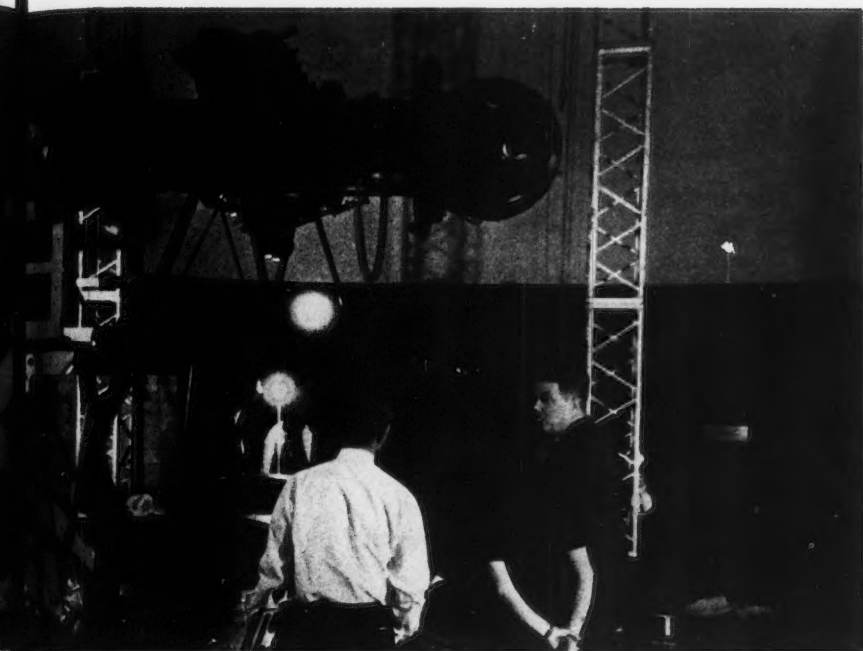
Now in place, but not yet attached



One of the 150 lenses is given a last-minute cleaning and inspection.



Latitude, longitude, and months



to its platform, the projector is tested. Many hours were spent in painstaking adjustment.



are projected on the dome, as technicians check for inaccuracies and any optical distortion.

Africa Through the Eyes of Some Museums in the United States

ANTHONY H. M. KIRK-GREENE

NORTHERN NIGERIA, WEST AFRICA

The present note was not an easy one to compose. I have enjoyed deep hospitality from, and made a number of valued friends among, American Africanists during a recent year of lecturing and research at half a dozen of the universities in the United States. Therefore I shun anything that might be interpreted as discourtesy or ingratitude. Yet, at the instigation of some faculty members concerned with the African programs, I am here drawing attention to a group of faulty museum exhibits.

The key to this moral dilemma lies in the purpose of this note. I write not to underscore American ignorance or illiteracy on African matters (the reverse is very much the case, for many of the African study programs possess a high degree of sophistication and are conducted by exceptionally talented scholars), but to point out elementary errors, which deserve to be put right if for no other reason than to prevent embarrassment or offence to the visitors from African states who are more and more frequently coming to the United States. They are naturally interested in seeing some manifestation of the great enthusiasm over their continent that now characterizes certain sections of American academic, government, and public life, and their quest, more often than not, leads them to the museums. There at least they may expect to get away from Hollywood's Africa of, to quote from a current film advertisement, "exotic dancers climaxing forbidden rites in a whirlwind of aboriginal passions."

One more caveat. Let it be made equally clear that I write not only from an *African's* point of view (that is, I have tried to put myself in the shoes of an average African visitor to the United States—curious, observant, intelligent, and somewhat sensitive) but also from a layman's point of view (that is, I am assuming total ignorance of the styles and schools and authenticity of the art exhibits to which I refer). What I am seeking to improve by this article is not the quality of presentation or the selec-

tion of exhibits, the techniques of which I know nothing, but the standard of basic, everyday, general knowledge, the conspicuous denial of which at times appals every African visitor, even though he be but a teenager with a secondary education.

I hope that I am not unaware of some of the more urgent difficulties that confront museum staffs. Because an honest appreciation of them may serve to inspire a feeling of sympathetic understanding in hypersensitive African visitors as well as to mitigate any inference of narrow-minded polemic in this paper, let me list the outstanding ones as an Africanist sees them. They center around limited staff and funds. First, most of the old museums were planned on the basis of permanent exhibitions, changing perhaps every twenty or even fifty years. Second, even if rotating exhibits were envisaged, a combination of shortage of adequate staff to relabel exhibits, a scarcity of Africanists, demanding interests from Maya or Indian or australopithecine displays, and the petty but perverse habit of showcases that prove obstinate to open, has often thwarted the planners of rotating exhibitions. Third, the information on African areas in the catalogues of many museums is woefully scant, as any curator will at once acknowledge. Such lack of information is particularly true of a class of African object that makes up the bulk of many exhibitions, namely, objects donated as gifts to a museum. A missionary or big game hunter may bequeath various pieces that he picked up without making any note of their provenance; worse still, they may be handed over by some grandchild or niece who knows nothing about them other than that they are presumably African in origin. Fourth, while not a primary obstacle such as are those of funds and staff, yet of secondary relevance, is the fact that, while the bulk of African materials was collected by amateurs many years ago, the increasing severity of local antiquities legislation (a classic instance is the decline in Egyptology, brought to the fore by the recent *détente* in excavation regulations) has made it difficult to acquire better-documented material which, in its turn, might simplify the identification of the older pieces.

Discretion and a sense of *noblesse oblige* advise anonymity for the museums. The list is in no way comprehensive, but merely takes in those museums that I have visited in my search for education in African art.

MUSEUM A: Terms such as "Kongo Free State" and "The African West Coast" are outmoded, while the country "Gold Coast" ceased to exist three years ago, and its accidental usage now represents almost an affront to the patriotic Ghanaian. Also in this category of outdated and unhappy terminology, much of it redolent of the white-man's-grave-cum-among-the-savages atmosphere of the late nineteenth century, are such labels as "Fetish Image, West Africa," "Sudanese Tribes," "Upper Forcados River Tribes," "Tribes of British and Portuguese South Africa,"

"Zulu-Kaffir," and "Wydah, Togaland" [*sic*], none of which is calculated to bring credit to a museum. But matters are worse, for there are instances of deliberate misinformation, confused further by regrettable orthography: "Brass Tray, African, Bedia, Hauser Country, Africa," "Colabar River," and [horribile dictu] "Karno," to quote some of the worst examples. It would not be harsh to expect the application of, if not what is widely held to be general knowledge, at least elementary checking of facts, particularly in museum exhibits.

Again, a museum might be expected to offer something more explicit than "Beaded Bracelet, African, Africa," "Wooden Object, African, Nigeria, Africa," or "Hat, African, Africa." "Section of Tusk, Tribes of Africa" does not get us very far. A mask labeled "Ebol, Central Nigeria" means very little, even if the label is generously interpreted as Ibo. There is an unfortunate outdatedness about the remark that "the African shows appreciation of music and other arts, but his rendering in all branches is crude," an assessment totally at variance with the judgment of contemporary critics. The use of the present tense is also open to criticism in "mediums of exchange are of iron, brass and copper." Having just lunched with a Chagga friend, I was relieved that he did not accompany me to the museum to read of his relatives that "they are an interesting people, friendly, but exceedingly superstitious. They are harassed by the Masai"—a comment acceptable, perhaps, in the understandable ignorance at the turn of the century but exceptionable today.

MUSEUM B: An excellent and very attractively displayed collection of West African art here was marred only by an unfortunate, magnified quotation from a well-known American magazine, happily out of date but less happily characterized by the superstitious-naked-savage style of so much *soi-disant* Africanist reporting. The handbook, attractively produced, richly illustrated, and accurately written, forms a valuable guide to Yoruba and Cameroonian art.

MUSEUM C: Another very fine collection, centered around Ibo and Ibibio masks, Ashanti and Yoruba textiles, and Cameroonian compound life, was spoiled to some degree by a number of minor errors in other exhibits. "The Hausa People, Togo Hinterland" is misleading by its suggestion of Togoland as the heart of Hausa culture. Similarly, "Buduma Tribe, Northeast Nigeria," "the Hausa people, who are widely distributed in the Cameroon," "Hausa Tribe, Maiduguri," and "Fulani, near Pankshin" gravely misrepresent, by implication, the ethnic distribution pattern. The nomenclature "Munshi Tribe" has been severely frowned upon for the past thirty years; the "Fika Tribe" is non-existent; and the locating of "Ilorin, Southern Nigeria" and "Bida, Southwestern Nigeria" might well lead to a civil war in present-day Nigeria! Surely the use of the past tense would be preferable in the very *passé* remark: "Iron money . . . these are

being replaced by European coinage."

MUSEUM D: Here again it was to the tenses and the overtones in the choice of words, which after all *do* mean something to the public mind, that exception can be taken. The remark (*italics added*) that a certain kind of spear money is "used by the X Tribe, French Cameroons. Twelve of these pieces *is the local price* for a wife" is as open to objection as the explanation that if a penny of a certain Liberian tribe is broken, "this coin's soul *is supposed* to escape and it is then valueless until a reincarnation is performed by the *Tribes' Medicine Man*," or that "this ring money or manilla . . . *has been* the popular form of currency along the West Coast of Africa for over a hundred years." Apart from this, the museum has a most interesting exhibition of coins from all over the world, including the new Ghana currency—in itself a refutation of the manilla implication.

MUSEUM E: A simple, sensitively laid-out, and excellently described exhibition of sculpture from three tribes of what was at that time French West Africa left little opportunity for cultural shock in the display other than the comment I heard one female visitor make to her companion: "Oooh—I think it just makes you *smell* the jungle!"

MUSEUM F: In a recent exhibition of African Negro art held at a university here, certain improvements might have been expected in a catalogue produced under academic auspices. For example, "Pipe Pottery: African, German East Africa," "Gebun," "Bemenda," "African, Uganda," or simply "Wood: Africa" and "Head-dress: Africa" are not nearly explanatory or accurate enough for a university museum exhibition, which had, after all, already been advertised as *African art*.

MUSEUM G: In this museum an interesting and neatly displayed small exhibition, no worse for having been either bought from traders or presented by affectionate alumni as it was in no way pretentious, was spoiled only by the poorly spelled description of a showcase "representing the work of Bamun, Benok, Bulu, Eton, Foulani, Fumban, Ngondere and Yaunda regions."

MUSEUM H: Here another pleasantly presented handbook, with illustrations that are better than its descriptive text, went well with a good display of African Negro sculpture. A Zulu skin-shield, however, looked peculiarly out of place in a West African collection.

MUSEUM J: Another extensive Cameroons collection was spoiled by one or two injudicious comments in the labeling. "Agriculture with a hoe is their only means of livelihood" is truer of the nineteenth than the mid-twentieth century, while I should not be proud to have taken one of my African student friends to show him his people designated as "Skillful agriculturalists and celebrated cannibals." Nor am I quite sure of the implications in the sentence, "Benin, the capital city, was reduced to a

savage village of a few huts."

Given the acknowledged quality of many of the museum exhibits and their attractive presentation, in addition to the impressive corpus of African knowledge now extant in the United States, it is not, I feel, too much to expect an intelligent, up-to-date standard of accuracy in museum labels. Just as no American would like to see an exhibit in the British Museum of a 1960 Chevrolet catalogued under "Motor Industry: Colonies," or a British visitor to the Smithsonian find "Inglo-Sexon" as his ethnic grouping, no Nigerian would welcome the nomenclature "Hauser of Karno" and "Eboe, Central Africa." Nor is the recent nationalist pleased to find "Gold Coast," "German Kamerun," and "Kongo Free State" perpetuated and taught to the visiting public.

While the fact that it is hard for scholars to keep up with political changes in Africa when reading proof of their articles and that nobody expects the cartographer to keep pace with the currently frequent shuffling of state names and even boundaries in West Africa must be admitted, it is not easy to be lenient towards failure by public educational institutions to be anywhere near abreast of contemporary usage. Similarly, on the accuracy of labels, despite the agreed divergence of opinion on the rendering of tribal and political names, museum staffs should have available such accepted guides as the International African Institute's series of the *Ethnographic Survey of Africa* and *The Handbook of African Languages* or the revised edition of "A Practical Orthography of African Languages." Finally, museums with considerable African collections may see their path smoothed by following the example set by yet another museum that I visited, where an aged, unpacked collection of African varia was being meticulously identified, sorted, labeled, and catalogued by an established Africanist especially hired for the task. These experts may be few and far between, but, without some such campaign, museums worthy of the name may be faced with the choice of either exhibiting materials with inadequate or even inaccurate data, or of omitting Africa from their exhibits. Solecism in a public exhibition is rarely forgivable; illiteracy, never.

Designing Personality into Diorama Figures

BARTLETT M. FROST, ASSISTANT DIRECTOR
DETROIT HISTORICAL MUSEUM

The figures in the illustrations that accompany the present article were for the most part executed in a time-honored museum method. They are modeled in flesh-colored wax over wire armatures. The flesh areas, the eyes, and the hair were given a little extra care in modeling, but there is no technical trick involved.

THE FLESH AREAS

After the figure is modeled, and in preparation for final coloring, the wax is smoothed with a soft brush dipped in kerosene or turpentine. This (1) blends the tool marks and (2) within ten to twenty minutes puts the wax surface in a proper state of dry tackiness to receive the color. The colors are in dry powdered form and are stippled on with a soft brush. The modeling wax already has a basic flesh tone. These dry colors are only to improve this translucent flesh tone by the addition of natural variations such as eye shadows and the deeper or opaque tones on elbows, knuckles, cheekbones, and so on.

THE EYES

The eyes are simply imitation pearls of the cheapest variety (buy a string of these to have a choice of sizes). These "pearl" beads are a white glass covered with a pearl-like skin. Remove the skin for a dull eye; leave it on for a more arresting eye. The bead is positioned in the wax head in the same way that an eyeball would be, and wax eyelids are modeled over the bead. Paint in the pupil and finally add dammar varnish for eye moisture.

THE HAIR

The hair is mohair, or Angora goat hair, which scales well with these eight-inch figures. I obtain it in pelt form and cut the pelt into six-inch

squares. The squares are dyed a variety of human hair colors. Locks of hair can be cut away from these squares as needed. The hair is applied to the head a lock at a time. A hot steel tool melts just enough wax to grip the base of the hair lock. Succeeding hair locks are applied in a manner to conceal the fastening of the preceding hair lock—like the applying of roof shingles. If the natural curl in the mohair is not enough, then smaller curls can be made by wrapping locks of dampened hair around heated wire, or nails, of assorted diameters.

Any attempt to make realistic, life-like figures—figures with personality—must eventually go beyond craftsmanship. The best diorama figures will look only like stiff little mannequins unless we plan them with human behavior in mind. We are better judges of human behavior than we realize.

Almost any one of us is able, after a brief contact, to form an opinion about another person. We do this very rapidly, and without much conscious effort. What we observe about a person, in arriving at an opinion of him or her, is primarily divisible into three categories: (1) clothes: the nature of the garment and the manner in which it is worn; (2) actions: the manner of locomotion and demeanor; and (3) speech: the extent of vocabulary, the accent, and the timbre of the voice.

Anything we can observe about clothes and actions and their relation to human character and moods may have some practical application to the diorama figure. I am sure we would all agree, for example, that an angry, exasperated man would slam his hat onto his head, while a self-satisfied man would place it carefully, with perhaps a rakish tilt. It is in this area of clothing and motion that we will find our ideas for posing the figure.

WHAT POSE IS MOST ELOQUENT?

Let us imagine that we have a strip of motion picture film, about twenty frames in length, of a man throwing a ball. After studying the individual frames or poses, we will select the ones that best represent the entire action.

In the first few frames the man winds up, is cocked to throw; then, frame by frame, pose by pose, he unwinds until, at the end of the sequence, he is releasing the ball. Do you not agree that the most expressive

Fig. 1. Heads of persons shown in diorama of the plot of Chief Pontiac against Fort Detroit. From upper left: Antoine (Papa) Beaubien; Major Gladwin; Angelique Beaubien (Thursday morning); warrior; James Sterling (Saturday morning); Mother Beaubien; James Sterling (Friday night); Angelique (Friday night); warrior's helper.



Fig. 1



Fig. 2

poses are at the beginning or at the end of the action? In the beginning pose, the man is definitely winding up to throw something, and it would be difficult to misinterpret the pose. The same is true at the end of the action. The middle poses, however, when looked at without regard to preceding or following poses, are not very expressive. In mid-throw, the throwing arm is overhead where it could be interpreted in several ways. So, for the pose that suggests the most motion, the most clearly, choose a pose near the beginning, or the end, of that motion.

The face of a man is where we first look to analyze him. We "read

Fig. 2. Angelique overhears a murderous plot from her bedroom.

Fig. 3. The plotters: Chief Pontiac; complacent conspirator; skeptical aide.



Fig. 3



Fig. 4

Fig. 5

him" primarily by his eyes (the eyes are windows to the soul), and then by the "cut of his jib"—the impression we get from the entire face and head. However, do not overlook the balance of the body as a means of eloquence. Fatigue, exuberance, anxiety, and belligerence can be strongly implied by arm and leg positions. The suppleness of the pelvis in relation to the rib basket and the expressive range of movement of the shoulders are aspects to employ when you plan a pose to say something.

The accompanying photographs are labeled but not explained, because, if there is any validity in "Designing Personality into Diorama Figures," you will already have "read" such moods and character as these figures were hopefully designed to project.

On second thought, however, I shall take one picture and discuss at some length just why the pose is as it is. Before I even start a figure, I first become thoroughly acquainted with the person the figure is to represent. With some historical characters, the face is common knowledge (such as that of George Washington), and that is the face that must be done, or you will be defeated before you start. There are other occasions, however, when there is no record of the character's actual



Fig. 6

appearance; then you must arrive at a face by other means. In such a case, if the character is at all important historically, there will be ample material on his times, his acts, his thoughts, what he said, what was said of him, and so on. As you go through this material, an image of the man begins to form in your mind. You add up the things he did and the way he did them and finally you develop an impression, or a conviction, on how he ought to look.

What you have done is to associate his recorded behavior with persons of your acquaintance. You have drawn from the wealth of your personal experience in how a person looks in relation to his behavior, and you have matched this composite appearance with the behavior of the his-

Fig. 4. Indian woman helping warrior hide weapons.

Fig. 5. At a ball on Friday night, Angelique warns her lover, James Sterling, "Do not be in the fort tomorrow morning."

Fig. 6. After the ball, Sterling rushes to Gladwin with news of the plot.



Fig. 7. The modeling of the figures, to show scale.

toric person. The historic person is now a definite physical personality in your mind's eye. Now you feel you know him and know him intimately. Now, and only now, should you start the figure.

In Figure 2, the appearance of the seated figure was arrived at by the above means. The figure represents Major Henry Gladwin (1726-1787), British Commandant at Detroit in 1763. The only extant likeness of Gladwin was in all likelihood painted only after his death at the age of sixty-one. The only comment on his appearance was made by a con-

temporary, who said, "I do not want to be pierced by his steely eyes." Of the mass of material written about Gladwin and his time, these several conclusions could be made about him personally. At the time portrayed, he was an exhausted man, sick with malaria. For weeks, Chief Pontiac had held Detroit in a state of siege, but Gladwin had, by a succession of conferences with Pontiac, so far managed to avoid bloodshed. As Commandant, Gladwin was responsible for the safety of some 600 local French residents as well as his own English soldiers. He was known as a disciplinarian, a considerable diplomat, and a proud soldier.

Now we are ready to plan the pose.

Major Gladwin is at ease in the privacy of his quarters when James Sterling bursts in with bad news. Sterling has learned from Angelique Beaubien that, during another meeting between Gladwin and Pontiac scheduled for the next morning, Pontiac and his warriors will have weapons concealed under their blankets. The shirt sleeves and open collar indicate that Gladwin was "at ease in Privacy." The uniform coat, which would not be worn under the circumstances, is on the back of the chair, where it is the only visual evidence that Gladwin is a soldier. The slumping in the chair is indicative of physical and mental fatigue. Incidentally, the chair itself is part of the pose, for it is a rich, heavy chair, one that is appropriate for a commandant. Imagine how incongruous a rocking chair would be!

Notice that Gladwin does not face Sterling but looks away as though the solution to his problem is not to be found in Sterling's face. This looking away is typical of a man in deep thought or anxiety. Gladwin's relaxed left hand is his way of trying to present a picture of calm confidence, but his tensed right hand exposes his internal tension. The face, although it shows fatigue and illness, still portrays, by strong chin, grim mouth, and serious eyes, the determination we would expect of a British officer.

Sterling is posed to show excitement, fear, and anger or criticism. He fears the coming situation and he feels anger and criticism because he suspects that Gladwin will go right ahead with the scheduled meeting (Gladwin does). The left thumb stabbing backward is the fear. The back-tilted hat and right hand show the anger, and the forward thrust of the head is the criticism. The widely spread feet and forward slant of the body indicate his excitement.

Whether or not you personally are concerned with the execution of the human form, I still recommend the absorbing practice of trying to understand the many-faceted means by which emotions and character are projected visually. It's an interesting pastime, and ample material is always at hand.

Evermore of interest to man is man.

The Making of a Scientific Museum

LOUIS POPE GRATACAP

CURATOR OF MINERALOGY (1890-1917)

THE AMERICAN MUSEUM OF NATURAL HISTORY

EDITOR'S NOTE: The present article, one of a series written and illustrated by the author during his tenure at The American Museum, appeared in an architectural magazine in April, 1900. Associated with the Museum for forty-one years, Gratacap had a lively interest in the organization and display of all the Museum's collections. His knowledge of museums in general was vast, and the intensiveness of his study of exhibition techniques most unusual for the time. Techniques and methods have changed in the last sixty years, but the problems discussed in this article are those that still exercise us today.

In the discussion of the Installation of Museums the subject splits up at once into three groups, of equivalent importance perhaps, but of entirely divergent character. These three are Technique, System, and Effect. Technique relates to or embraces mechanical adjustments, conveniences, receptacles, buildings, and the physical constants, or material. System relates to or embraces scientific sequence, illustration, and information. Effect contains the whole subject of æsthetic presentation.

TECHNIQUE

In the widest and apposite use of the term, Technique expresses the artisan phase of installation, reaching from illumination which hints at the construction of the museum itself to the best form of pins for suspension or insertion of specimens. It covers the multi-various details of *how* to exhibit an object, without bearing upon beauty of effect or implications of science. It commends to the

curator considerations of stability, of cleanliness, and efficacy. Therefore it relates to the simple elements of construction, including in that term *form* and *material*.

Under *form* it discusses size, shape, and arrangement of a Hall of Exhibition, or the Domiciliary; size, shape, and relations of cases, or the Loculus; size, shape, and relations of trays, supports, shelves, blocks, standards, pediments, and all accessories of the same, or the Paraphernalia.

Under *material* it discusses or compares the advantages of material entering into the Domiciliary, Loculus, or Paraphernalia, as wood, stone, iron, ivory, celluloid, paper, silk, plush, cotton, cork, paint, etc. To resume in a tabular form these distinctions we have:

Form—	{ Domiciliary
	{ Loculus
	{ Paraphernalia

Material—All useful fabrics

SYSTEM

By System it is not implied that we are entitled to discuss classification of organisms or objects, whether minerals shall be arranged by formulæ or bases, plants by Gray's or Britton's manual, invertebrates by Cuvierian or Huxleyan methods. But there is implied by System the discussion of such means and ways of display that lead to certain intended results with reference to a mental impression on the spectator. Such Systems are quickly comprehended under three heads—Popular, Philosophical, Scientific—separated most naturally by the simple implication of the terms. The Popular System informs the visitor what the objects are, bending on each a discriminating attention. The Philosophical System develops the relations of objects to each other and to their environment; it may be teleological, it may be evolutionary, it may be simply spectacular. The Scientific System tells of objects, their terminology, taxonomy, morphology, biology, and the varied aspects of living things as deciphered by Science.

How these results shall best be attained can be a legitimate consideration under Installation.

EFFECT

Effect is quickly understood. The æsthetic quality of a display is gauged upon inspection. And such effects are numerous; tasteful, impressive, sensational, sumptuous, plain; but referring always to visual impressions affecting our sense of beauty, propriety, clearness, etc.

Taking up these separate heads under which it seems possible to group all questions of Installation, we have a conservative series of topics which leads us from the basic mechanical structure to the ultimate emotional expression which, issuing from the separate factors, and from the unity of all factors, pervades the whole Museum.

TECHNIQUE

Domiciliary

The museum building, when many storied, should be rectangular. It is evident that all curves, irregularities of surface walls, notches, cones, recesses, disturb the succession of cases, confuse the light and produce mechanical difficulties in arrangement and construction of cases. This rectangular building should be

shortened in one direction and lengthened in the other in order that the lights falling in on either side should not lose their intensity by penetration, but somewhat mingle. A square building is objectionable because it is not apt to be as well illuminated as a narrow one. Such a building should be placed, in this latitude, and generally, north and south, so that morning and afternoon light could enter it. Its width should be about fifty feet, and may vary to thirty. Above fifty the illumination is reduced, and below thirty the halls fail to furnish adequate space for economical exhibition. It is impossible to extend one building indefinitely north and south; additions in some way are imperative. Their best disposition if the ground is available is in a succession of separated houses arranged *en echelon*, so as not to interfere with each other's light, and connected by terminal halls.

Groupings (Fig. 1) of this character can be indefinitely varied, and they can be made

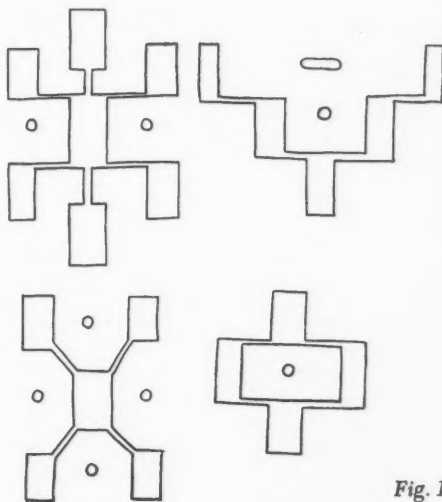


Fig. 1

architecturally attractive separately, and their combination distinctly imposing. But such groupings are usually impossible. They occupy too much ground, they involve an expensive duplication in structure, and they are too scattered, failing in massiveness and solidarity. They besides are more exhaustive of effort and energy to visitors. Yet to such a degree as these long meridional structures can be obtained in

connection with a more reasonable disposition of material they should be desired, because their illumination meets usually the most exacting requirements.

In cogency of design, as involving such an arrangement, a wide elongated court, walled in by the continuous museum buildings with axes north and south can be recommended. The width of such a court, however, should scarcely be less than five hundred feet, so that the opposite sides of the court should not prove mutually obstructive of light in the mornings and afternoons. The north and south walls connecting the ends of the long side structures will offer a great deal of room, and cannot, of course, be rejected for exhibition uses, but in order to secure light their ceilings should be high and their width greatly narrowed. In this latitude such east and west buildings, if made deep, lose light greatly along the north interior

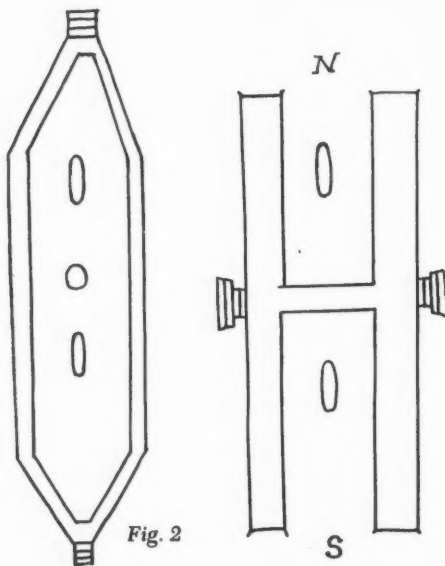


Fig. 2

walls. A better plan as involving less east and west lines are two long buildings connected by a narrow hall of one or many stories, which is a corridor of connection and which can be devoted most attractively to the illustrative uses of maps, photographs, and pictures (Fig. 2). A still further modification which provides an almost uninterrupted series of equally

lighted halls is the erection of a prow-shaped terminus to the quadrangle of buildings, formed from two inclined wings meeting in a common entrance (Fig. 2). In this case again the dimensions contemplated are rather greater than is usual, and the complete inspection demands a fatiguing journey, and the convenience of intercommunication is reduced to a minimum. Still ideal conditions only are here regarded, and the human factor must retire into extinction.

A museum building can be erected in the form of a rectangle connected by four arms from a central tower, as is the case with the projected complete structure of the American Museum of Natural History (Fig. 3). But the criticism to be made here is the great width—500 ft.—of the wings on the south and on the north sides of the rectangle, which are not meant to be connective members simply, but form exhibition halls (the south wing of the A. M. N. H. will soon be completed, and, as the museum stands now, constitutes over three-fourths of the whole edifice) which yield defectively illuminated halls on account of their cardinal position east and west. The same length of building north and south would have been preferable. The National Museum at Washington is in the shape of a Greek cross with a central rotunda. The four main arms or "naves" around this rotunda are 101 feet in length and 62 feet wide, and the rotunda rises 108 feet. The exterior angles are filled in with the "courts," 65 feet square, and these are again flanked by the "ranges," whose outer walls form the extension of the whole building, which is thus filled out into a complete square. This plan would be most objectionable as far as illumination is concerned, if it were not that it is carried out on a single level with clear-story windows, which contribute the skylight to the general illumination.

The Manufacturers' and Liberal Arts Building at Chicago was covered, in its skylight, with eleven acres of glass, but its enormous height of 210 feet precluded the full effect of its upper stories and covering of windows. One-storied canopied buildings, if low, are defective in appearance, and they are diffuse and expanded, covering a good deal of ground while they furnish insufficient wall space, unless cut up into rooms and halls, producing thereby a tangled and confusing labyrinth, and

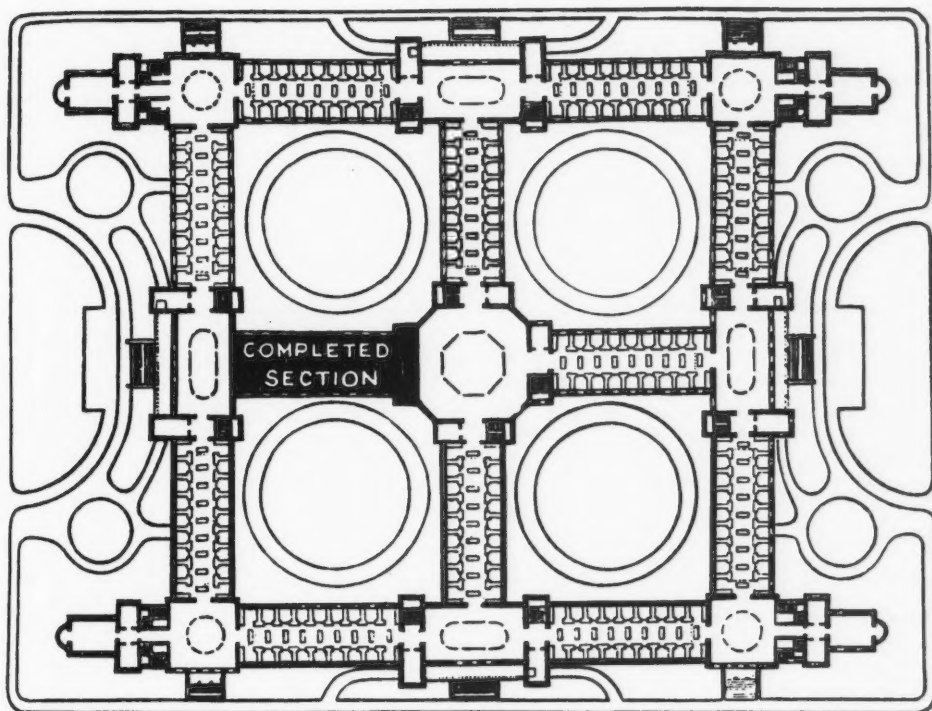


Fig. 3

interfering with the aims we shall further consider under System and Effect.

A very tantalizing result of total reflection occurs also with skylights, unless properly obviated, whereby the glass of flat cases, exposed beneath them, become the mirrors of the roof, and reflections of gratings or sashes are distractingly mingled with the view of shells and minerals.

MATERIAL

The material used in the construction of the Museum building is determined, of course, by taste, resources, and convenience. Thick walls form a protection against damp, and stone and fire brick are partial safeguards against fire. Such walls, however, must be provided with a hollow air space, otherwise their thickness is an insuperable obstacle to proper dryness. The most complete defense against the misfortune of fire is an isolated or detached position. Wooden floors are objectionable. They do

not admit of complete cleaning, and they accumulate and form dust. The interior of a museum should be austere plain; mouldings and decorative woodwork, even such purposive decorations in plaster as at the S. Kensington in London, should be repressed or abandoned. All niches, crevices, pits, depressions, and traps for dust must be religiously excluded. Artistic effects are to be sought, but by somewhat different paths.

The museum building can be carried upward to any height, and where space cannot be easily obtained in a north and south line, rather than grow sideways let the museum structure rise upward with additional stories. This has never been tried because it interferes with architectural pretense, but it will keep the museum in the best plane for light as explained before. It is perfectly feasible and not necessarily ugly. I believe a sixteen or twenty storied bank of halls would, when the very best position had been selected, form an admirable and

almost perfect museum structure. The ascensional possibilities of arrangement would permit a very philosophical development of ideas in System and classification from inorganic through organic to human subjects.

The material, position, and size of the building being fixed, and, considering a four-storied simple rectangular structure as the form contemplated, the windows and the varying heights of the different stories are next to be determined. The proportions of the first section of the American Museum of Natural History in New York are almost ideal (Fig. 4).

THE LOCULUS

This embraces the cases which are wall, flat, or desk cases, and special or group cases, and turnstiles, drawers, and storerooms.

Cases.—Dr. Goode has remarked that "of all the practical questions which confront the museum administration those relating to the form and construction of cases and the methods of interior fitting are among the most perplexing, and, so far as the relationships of the museum to the public are concerned, the most important. Each well-arranged case, with its display of specimens and labels, is a perpetual lecturer, and the thousands of such constantly on duty in every large museum have their effect upon a much larger number of minds than the individual efforts of the scientific staff, no matter how industrious with their pens or in the lecture room."

In the National Museum a great many forms or sizes of case are in use, and this tendency, the result of a desire to enclose in each case a separate and inter-related group of objects, seems carried too far. It is wiser, especially with reference to Effect, to limit the cases to a few comprehensive forms. There does not seem much reasonableness in forming exhibits separated in a series of differing cases. The mere exposition of an object so that it can be seen, and seen well, and appear most advantageously, does not demand a great variety in the character of cases, nor even such a wide range of dimensions, except, as in "special or group cases," the nature of the contents determines its necessary size.

To begin with, wall cases are of three kinds, though in one the designation is conventional and not literal; wall cases proper, pier cases, and double front cases, or cases with a middle

partition affording shelving room on each side. These latter are upright cases, but entirely detached from the walls. Of these various forms of wall cases the pier or alcove case seems most desirable for the larger number of uses. The pier or alcove case springs from the wall between two windows, and thus on either side exposes a surface of illumination to the window. There is always, of course, varying with the time of day and season, an area of shadow at the wall end of the case, which by a device of the late Calvert Vaux can be partially or wholly overcome. Mr. Vaux had lancet windows placed in the wall through which the light entering the middle of the case at its contact with the wall dispersed the shadows formed by the angle of the window (Fig. 5).

The introduction of this suggestion leads us to consider a peculiar and admirable form of pier or alcove case, developed also by Mr. Vaux, in the first section of the A. M. N. H., our Unit museum. This is the T-shaped case designed to form a front upon three sides, those aspects against the alcove itself, and the third upon the hall face of the case (Fig. 6).

In this disposition of course the alcoves are lighted by a window, which should be almost the entire width of the alcove itself. In our unit museum this, however, is lacking. When these cases were first erected the lancet window mentioned above had an illuminating effect but it was found that the cases became confusedly lit by cross lights, and it was necessary to place a partition through the centre of the case, forming a background and reflecting surface for the objects in front. The end or proximal window, however, still is useful. These cases are admirable. By removing the shelving large enough compartments are formed for single large figures, as mammals, while their complete illumination, increased also by the inclined ends, their great capacity, their structural interest, and the room-like effect of the alcoves produced by their approximating distal ends, all combine to give them pre-eminence. Along the main hallway their extended ends form a broad case-like effect quite superior to the narrow end of the ordinary pier cases. The ordinary pier or alcove case is carried out from the wall with two straight sides. The dimensions of these two examples of pier are as follows—compare Fig. 6: T-shaped pier case a-b, 3 ft.; a-c, 9 ft.; d-e, 4 ft.; e-f,

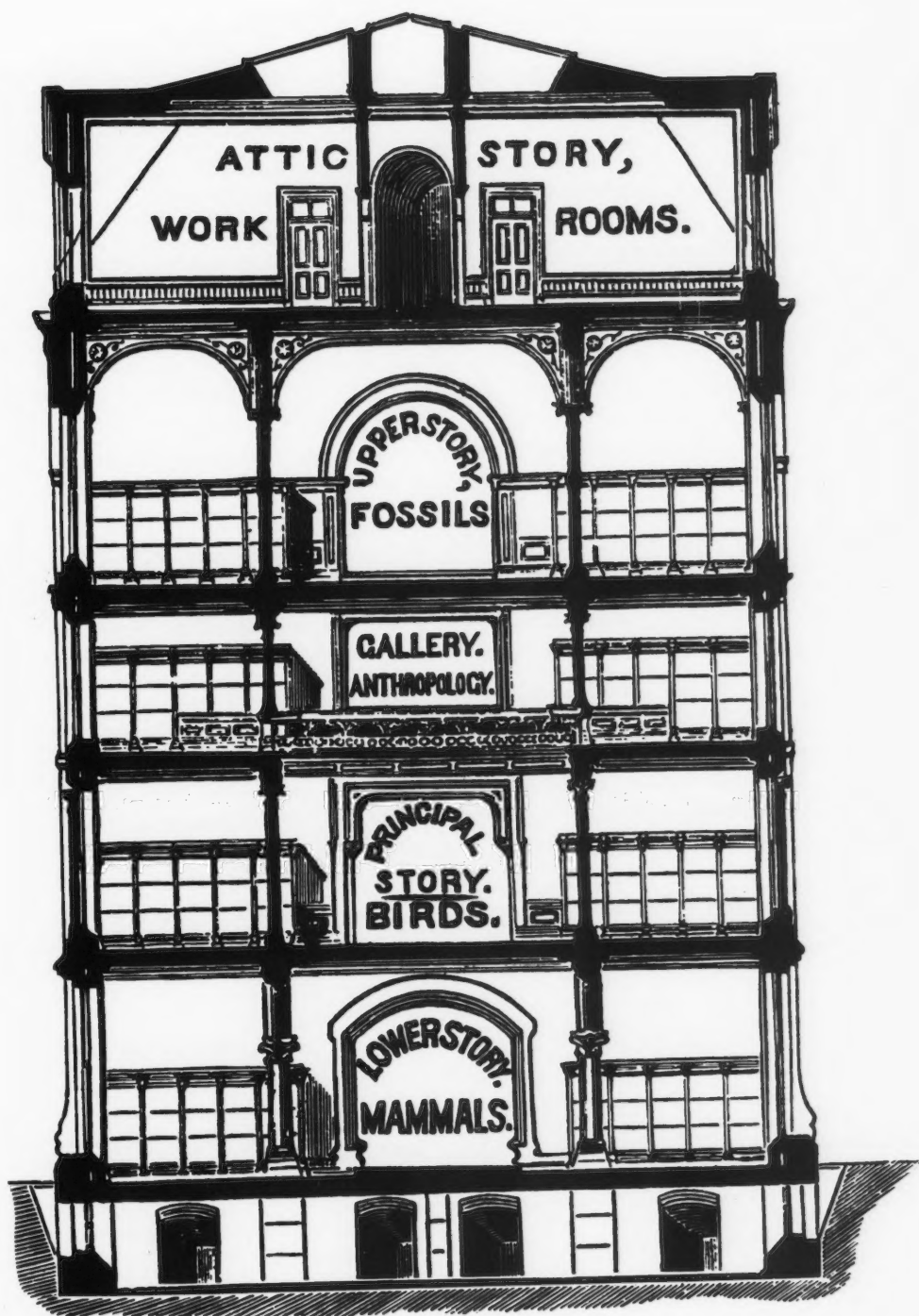


Fig. 4

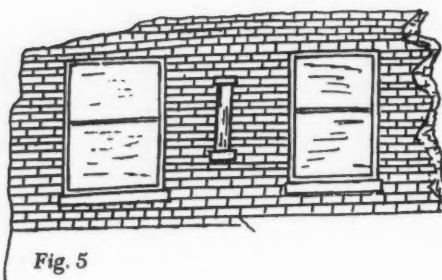


Fig. 5

12 ft.; x-z, 18 ft.; L-L', 1 ft.; L'-L'', 7 ft. L''-L''', 1 ft.

The mouldings are very simple; the wood black walnut, oiled; the angles in front rounded; the depth of the frame holding the glasses two inches. There are three doors on the front, one on the sloping side and three on the shank of the case.

BOX PIER CASE

This, in the instance chosen, is a rectangular case reaching out from the wall twenty-one feet, four feet wide, with a height of eight feet and a few inches (4 or 5), base ten inches, and top moulding of eight inches.

The body of the T cases in the American Museum was of wood sheathed with iron. The doors are of single panes of glass in iron frames swung on iron pins in sockets. They are locked by the bolt or Jenck's lock. The disposition of standards for shelving is seen in Fig. 6, the black squares indicating their position. These standards are of wood on each side of which are screwed racks upon which brackets are gripped (Fig. 7).

Figure 8 gives a variety of bases, mouldings, cornices, etc., which may be used in pier cases, and indeed in any wall case. It seems desirable to repress too much moulding and generally not to have the base mouldings on the pediment of the case over one foot in height.

In Figure 9 some working details are depicted (not in scale) of a pier or pavilion case without partition or diaphragm, for which I am indebted to A. R. Strader.

A useful alcove case for displaying cloths, blankets, tapestry, or even implements and flat objects in Natural History is practically a board framed in a sash with two glass doors lifting up. These are narrow cases generally with two doors on each side. They have been

used effectively in the New York Museum, and they are employed for the synoptic series in the National Museum.

Wall cases proper are those built up against walls extending considerable distances, in fact, covering all the wall surface of a room or hall as high as the case itself reaches. Such cases are variable in depth, according to uses. Wall cases are frequently poorly lighted when placed between windows. Their best position is east and west, with east or west windows pouring in light along their fronts. The north wall cases of the central south section of the A. M. N. H. are quite defective from poor illumination. In the *unit* museum (the first section of the A. M. N. H.) there are only short wall cases in the north and south alcoves of the halls, and they here receive the lateral illumination of east and west windows. Such wall cases are shelved as the pier cases.

The practice of using glass tops to cases, as recommended by Dr. Goode, seems questionable, except in small group cases, where it improves the appearance of the case. Dust soon accumulates on the glass or it becomes otherwise dirty, and it requires frequent cleaning, while when objects are raised above the

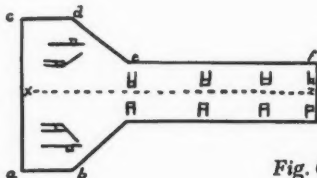
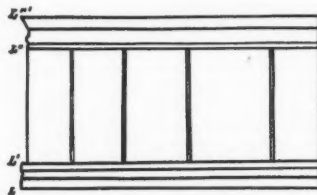


Fig. 6

cases the glass is an obstruction to their manipulation. Dimensions of wall cases of course vary, their depth being adjudicated by the character and size of the objects they are intended to hold. A depth of three feet seems

widely serviceable.

The doors of all upright cases should be swing doors, opening outward, for the one sufficient reason that they can be easily cleaned. Dr. Goode's advocacy of doors pushing upward is induced by the broad glass pane, such an arrangement allows, which of course has advantages. But the difficulty of cleaning the whole door properly seems to outweigh all advantages. Such large plates of glass are, however, also feasible in sliding doors moving past each other on tracks.

The double-front cases are rectangular cases detached from the walls, with a diaphragm or back passing from end to end through the centre. They are two wall cases back to back. Such cases are useful and might advantageously replace all wall cases where wall cases cannot be so favorably built as to receive the light from the windows. These double-fronts should be on heavy iron wheels or rollers, hidden by a marginal skirt of wood or stone. And, indeed, all cases, where it is feasible, should be movable. I have seen the most unfortunate strains given to cases, and the most unlucky injuries inflicted on men by the hardship of having them *shoved* into new positions.

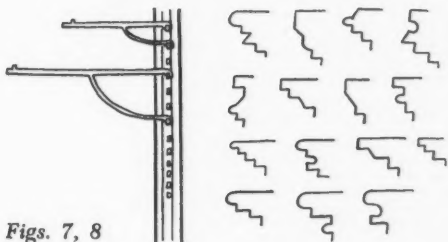
Group or special cases belong to the classes of cases here considered. Such cases can be varied to a very large degree by their external ornamentation, but simplicity seems in all respects desirable. Group cases are large or small boxes of glass, framed, and provided with the requisite pedestals or bases. Groups not too large, as bird groups, are in the New York Museum placed on tables, which are necessary to bring them within the inspection of visitors. Large mammal groups occupy cases built from the floor, as it is hardly necessary to recall that their realism involves nearly always a life-size treatment of a large scene.

The table or flat cases embrace two classes, the desk, single or double, and the inverted V case on legs. Desk cases of great beauty have been prepared in numbers in the New York Museum, and it would be difficult to suggest anything more propitious for its objects than these. They are made usually with three sashes, giving them a length of some eighteen feet, and have two sloping sides—one inch in seven—and are fitted on the bearings of the lids with green plush as a dust prevention. Some of these cases are a trifle

broad, and the objects at the back of the case are indifferently seen. The best dimensions using the lettering in figure 10 are as follows: a-b, 5 ft.; b-c, 8 ins.; d-e, 12 ft.; d-f, 2½ ft.; f-g, 3 ft. 2 ins.; g-h, 4 ft. 4 ins.; g-a, 2 ft. 5 in.

Details are given in Fig. 11, for which I am indebted to A. R. Strader.

These cases, of course, can have these dimensions changed indefinitely by slight alterations, but the example given will meet all



Figs. 7, 8

requirements. Such flat cases can be raised on legs (Fig. 10), or they can be put on bodies or stacks of drawers which are to be used for putting away duplicate or unnecessary material, or overflows, or specimens unfitted for public exhibition (Fig. 10). As a convenience to curators they are invaluable. The artistic effect of these "bodies" is certainly unfortunate. The desk cases on legs forming no interruption to the untrammelled view of the floor of the hall conduce to the effect of size, and are distinctly more elegant. The flat, or desk case, is sometimes modified by an upright addition in which larger objects can be placed, and which may serve to break the depressed look—squattness—of the desk cases themselves (Fig. 12).

These are really seldom successful. They cannot always be used appropriately, and, unless the objects are large, they serve no useful purpose. They are better replaced by a long narrow box, divided by a partition, and opening on top by lids and supported on metallic standards (Fig. 12b). In these receptacles, photographs, maps, sections, separate objects, dissections, etc., can be placed, and made illustrative or explanatory of the exhibit of objects in the flat case below.

The inverted V, or A case, is a useful and sometimes attractive form of case (Fig. 13).

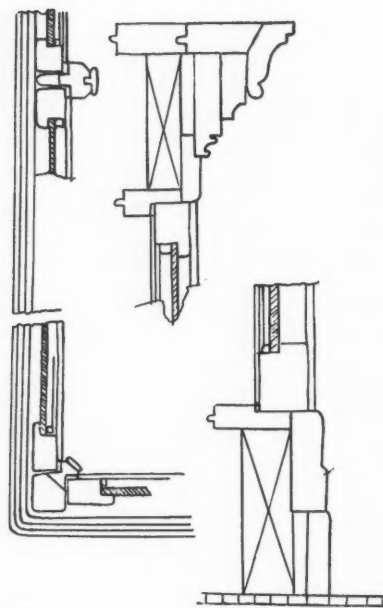


Fig. 9

They can be filled within by a core or not. This core takes the shape of a smooth or stepped pyramid. If the latter, the series of steps form shelves, upon which the objects are placed ascending upward. If smooth, the core can be covered with baize, cloth, plush, etc., and the objects in some way attached. The white plaster cells holding lepidoptera are in this way arranged very strikingly in these cases in the A. M. N. H., by pins holding up the white blocks. Or these A cases may be used for skeletons, animals, vases, etc., without cores. In this latter case the effect is poor, and the case is evidently constrained to a purpose for which it is unadapted.

The A cases are constructed of a metal frame, stiffening a wooden sheath, the doors on the side may be one or two, they open upward, are hinged at the top, and in the top a "light" is inserted. Dimensions for a typical case are as follows: Compare Fig. 13, a-b, 2 ft. 9 ins.; c-d, 3 ft. 4 in.; c-e, 2½ ft.; f-a, 3 ft. Length, eight feet, eleven inches.

Relief maps, geological features, as mud flowage, tracks, ripple-marks, etc., can be framed in low flat cases, on legs, glass tops, and sides, or simply framed, face exposed, and

fastened to walls, or left on the floor on rollers.

The material for all cases should be wood in the frames, black walnut, ash, chestnut, oak, or mahogany, or in case of necessary economy pine stained, and the glass should be plate, American or French. Of all these mahogany, or the Honduras Bay wood, forms the most beautiful material, its rich and durable tint affording the most attractive color effects. Rose wood can be used with great elegance in special cases, but of course exacts some unusual concessions from the treasury. Iron should be expelled. It is hideous, and its strength and lightness can make no compensation for its intolerable ugliness. Examples of some of the best iron cases are given in Fig. 14.

Besides the cases we have enumerated, which embrace practically all the kinds really desirable in a museum, many small cases hanging on or fastened to the wall can be employed, in which single or unique groups of objects can be shown. Such cases can also be supported by brackets, and, if judiciously introduced, may form a most admirable feature in a hall. They should not be, however, interminably varied in size and treatment. Their uniformity, at least in each hall, contributes to their aggregate interest.

Glass shelves in cases have been adopted in some museums. They are distinctly objectionable. They do not prevent shadows, for the objects on them cast shadows, the bottoms or undersides of objects discerned through them are unpleasant, and they break.

The dust-proofness of cases publicly exhibited is most important. The exposure of these cases to a bombardment of dust particles, continued through years, almost invariably results in an entrance of this defacing material, and a consequent deterioration of the display. It, however, in most cases effects its entrance far sooner, and the unsightly presence of dirt in the cases mars the exhibit of many museums very quickly. A necessary prevention is, of course, cleanliness, the mopping of the floors and a wiping of the glasses daily. The mechanical preventions are plush or felt strips on the bearings of the cover or sash with the case, or a tongue and groove in the cover and case. The latter is the more effective, in fact, it seems perfect.

Turnstiles (Fig. 15) are invaluable adjuncts to cases, and for some objects or exhibits are

absolutely indispensable.

In the British Museum such turnstiles contain the mounted specimens of local herbaria, and Dr. Britton will put them to an identical use in the Museum of Botany in the Botanical Gardens in New York. For photographs, illustrative plates—as once employed by Pt. Jesup for his wood collection—they form the only convenient means of accommodation for a large series of planular objects. They should be simple and strong. Such monstrosities as are seen in the German museums should be shunned. The turnstile of German museums consists in a heavy iron post, around which a circular series of perpendicular wires are stretched. These wires can be released and passed through staples in the frames of pictures, etc., which are thus suspended. The general effect of these is cumbersome, ungainly, and awkward.

PARAPHERNALIA

The many contrivances by which objects of various sorts are held in position, or the numerous receptacles for them, and the manner in which they are labelled, constitute paraphernalia. Trays, labels, supports, stands, pins, blocks, plaster cells, rods, backings, covers, etc., etc., all make up paraphernalia.

TRAYS

More diversity than would be considered probable, may exist in trays; their sizes, heights, colors, and attachments all offering points of difference. A form of exhibition tray has been in use in the National Museum for a long time, which receives some praise, but

can hardly be recommended with enthusiasm. These are made with rather high sides and with a bevel front, upon which the label of the specimen in the tray rests. They are black, and may have the bottom covered with paper or colored fabric. In the British Museum the minerals are laid on jewellers wool, which is packed into the edges of a rabbeted block, whose edges form a black frame. This method for the purpose has met with unqualified approval. A similar or identical effect can be attained by covering the bottoms of shallow paper trays with jewellers wool, which is fastened down by very thin black strips of black wood, fitting inside the tray. The cotton rises or puffs slightly, the frame of black gives individualism and elegance, and the effect is very attractive. In these cases the label is fastened to a sloping block placed within the tray so that the edges of the trays come in close contact. Such trays are made in an ascending series of dimensions, the longer side of one tray forming the shorter side of the tray next above it in size, as 2x3, 3x4, 4x6, 6x8, 8x12, etc., with occasional use of square trays and odd dimensions. These trays have sides three eighths of an inch in height. Plaster of Paris trays with bevelled edges have been applied to the exhibition of shells, but they are very poor, their white porous surfaces absorbing dirt and dust, and soon showing a sullied and repulsive surface. Porcelain trays have also been suggested, but they are expensive, and present a cup and saucer tea-service effect which is slightly ludicrous. Dr. Schuchert, of the National Museum, has put in use a terra cotta tile for holding fossils, but

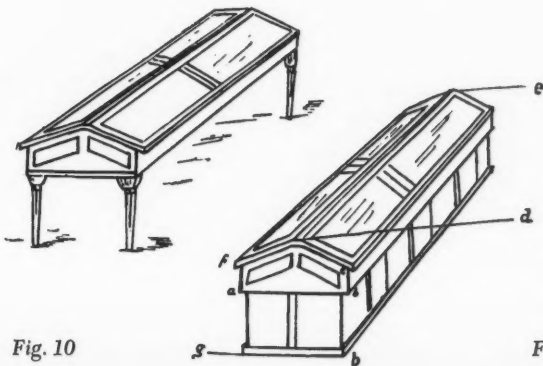


Fig. 10

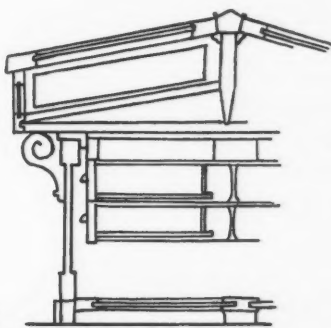


Fig. 11

its results are doubtful. The best or most attractive method of exhibiting fossils has yet to be discovered. An attempt will be made to solve this by the use of backgrounds and vertical screens for the tabular pieces, containing fossils, while the detached individual specimens can be arranged in trays or on boards of strikingly contrasted color, as ebony or ivory white.

Trays should not be too deep, simulating boxes; their sides should not exceed one-half an inch, and that usually is too high.

LABELS

Dr. Goode has drawn the attention of museum curators and authorities to the importance of labels, and in his report on the National Museum has feelingly expounded the whole subject. It really does seem that the acute and critical position of the label writer is somewhat overstated, and the extreme altitude of lexicographical excellence assumed for him rather exaggerated.

But with that we are hardly concerned. The technique of labels involves their colors and disposition; the size of type, etc., fall under System and Effect. A blue-gray has been for a long time used in the American Museum in New York. It is unsatisfactory. It fades and is soon discolored. A terra cotta seems preferable. It does not fade, and is a warmer tint. In the Mineralogical Cabinet in the New York Museum red paint on a gray ground has a striking effect. These labels are called *Rubrics*.

Besides these colors, Royal Wooster, maroon, brown, various grays, black with gold or silver letters for large labels, have been adopted.

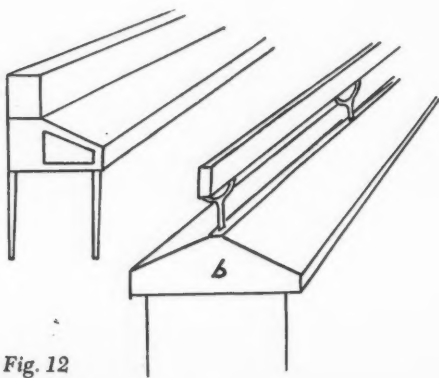


Fig. 12

Large outside labels of thin mahogany board with gold lettering are admirable. A label, for separate cases, of black ebonized wood, with gold letters, is excellent and effective. Dark brown leather labels, with gold letters, are also attractive, and can be used to distinguish important gifts. On the whole, in the card board labels on the inside of the cases the plain border label is to be preferred to the label with a line frame around it. It is more chaste. But, if the expense and labor can be afforded, the card board label sunk into, or attached to, a black or mahogany strip of wood, so large as to make a frame around it, is very elegant. The larger general labels in card board should all be framed in narrow bead frames of wood. The outside wood labels of black or mahogany, if on wall cases, are attached by picture moulding hooks, and if on desk cases are supported by brass rods.

SUPPORTS, STANDS, BLOCKS, PINS

To be clearly seen many small crystals and sometimes small shells demand a support, which lifts them into individual prominence, while large groups of crystals and coral masses, as well as all taxidermical specimens, need stands and pedestals as an artistic embellishment. Small black pedestals of wood can be bought from dealers which will serve for mounting crystals, upon which the crystals can be attached by black wax. Glass rods are also in use, and frequently shells or other flat objects are attached to them by wax in such a way as to appear unsupported. In the mounting of skulls and the large fossil remains of the mammalia from the west, Mr. Hermann has used, with splendid results, brass rods socketed in mahogany blocks. For mineral masses, stands of ebonized wood and mahogany are superior, but oak, chestnut, and black walnut can be favorably used. On steeply slanting shelves the label block can be used as a support to the object, or, in the case of large shells, a V-shaped collar. Devices are innumerable for meeting such problems, and the skill and taste of the exhibitor can be indefinitely exercised. A pin is a form of support, whether it transfixes an insect, or holds up the end of a Chinook blanket, or restrains a clam shell from sliding off an inclined board, or exhibits poster-like a label, or, more differentiated still, with three clamps, grasps a gem.

Pin, therefore, is a generic term for metal apertures so modified as to meet these different uses. Rods run along the tops of cases, form a convenient rack for the suspension of pictures, maps, etc. The rods are held by staples.

JARS, PLASTER AND GLASS CELLS

The plaster cells of Jencks for lepidoptera are probably one of the most notable inventions in museum installation proposed in the last ten years. They consist in a white plaster block, with a depressed pit holding the body of the insect, whose wings are outstretched, the whole sealed in by a glass cover. Glass cells for food products, medicines, herb preparations, etc., can be formed from five glass plates cemented together by soluble glass, and covered by a glass slide moving on vaseline. A more elaborate form consists of four glass plates socketed in wood, with a glass cover held on by metal pins, which pass through the glass, and can be unscrewed, their ends being driven in the wooden frame at the bottom of the cell.

Glass jars for alcoholics should almost invariably be flat with black painted backs, so that the bleached or diaphanous objects contained in them can be clearly seen. Flat glass jars are expensive, but it seems likely that some experiments, now in progress, will enable the less munificent managements to make their own jars from glass panes held together by a new waterproof cement, buttressed possibly at the angles by a mixture of hydraulic cement and plaster of Paris.

BACKINGS, COVERS, ETC.

Backgrounds may be made to play a most important part in the exhibition of specimens. The congruous contrast of colors between the object and the surface on which it is displayed heightens to an almost spectacular intensity a museum installation. Backgrounds can be painted surfaces or fabrics. Painted surfaces are blue grays, the color so lavishly employed in the A. M. N. H. of New York, and for most purposes very effective, or buffs, even reds, while in fabrics black for white objects, as corals, and green for shells, and an ivory white or maroon for fossils, are a good general selection.

Velvet covering cork tablets have been used for gem collections, the gem being laid on the

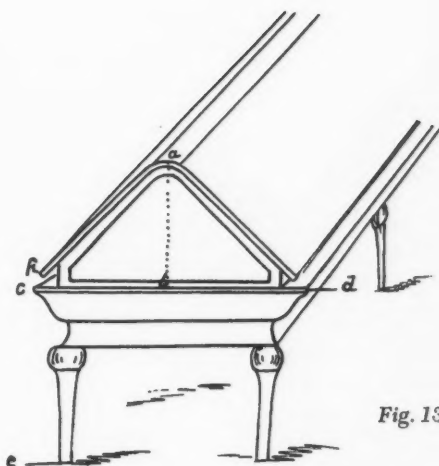


Fig. 13

velvet pad or fixed into the underlying cork through the velvet, by a pin. This is quite attractive, though perhaps an olive green would, as one color, better replace the patchwork of white and black. The installation of gems, so as to bring out their peculiar beauty, is not, at any rate in museums, solved. The jewellers do better, and their methods deserve study, possibly imitation.

SYSTEM

It has been pointed out that three systems of display which may "lead to certain intended results with reference to a mental impression on the spectator" are possible, the Popular, the Philosophical, and the Scientific. It is also to be inferred that these do not exclude each other, that they may be partially blended, or that they may co-exist in the same exhibit. And it can also be insisted that these three systems are applicable distinctions in the arrangement of an entire museum, as well as of its separate parts.

The Popular system involves naturally an obvious use of striking, even sensational features, brilliant effects, simple phraseology, and profuse and intelligible comments and directions. It aims to lead the visitor with continuous interest from hall to hall, to punctuate his delight with distinct and delightful impressions, and to leave on his mind a sum of recognizable recollections. Its instructions are of the dictionary type, each object is clearly defined in

and for itself; its relations are less accented and less evident. The Popular system of the Scientific Museum is the system of the Dime Museum greatly elevated, dignified, and replenished with culture, but still a practical appeal to the sensory centers of the spectator. The Museum building in a Popular system appeals to the eye, and has architectural beauty; its halls are large, and form attractive vistas, prominent and beautiful objects are set off with strong features of color and mounting, and in collections the remarkable and beautiful are selected, and the obscure and homely displaced. Thus, in shells, the large and showy only would be exhibited, the rest repressed; in minerals, the fine crystallizations, rare and dull species omitted; in birds, the magnificent and sumptuous, the plain and gray and dull neglected; in fossils, perfectly preserved and entire specimens, or those in good relief, broken and shadowy things consigned to drawers. The labelling would not be comprehensive or systematic, but special. Each exhibit would be well explained, its relations ignored. You might learn much about the giant squid, you would not be shown its classification, congeners, and physiology. You would see wonderful examples of quartz, you would scarcely realize its position amongst the other oxides. You would read of the habits of the bat, you would not understand the homologies of its limbs. You might admire the size of a whale's skeleton, you would not realize its position amongst the mammalia. Of course, no Museum of Natural History today defers entirely to a system so juvenile and fractional, although all museums are increasing their respect for its appreciation of *effect*, its evident intention to make the visitors stop and admire. The Popular system is a subdominant note in the chord struck by the whole administrative faculty of a museum.

The Philosophical system aims at unfolding an idea. It is less concerned with a multitudinous display of species than with developing the regimen those species illustrate. This treatment is well illustrated in the Main Central Hall of the British Museum of Natural History, where a series of cases present formative principles in animal life. Thus the group of pigeons, showing the variation of a species under domestication as the derived varieties from the Wild Rock Dove (*Columba livia*).

Again the modifications of the Jungle Fowl of India, where extreme changes may be noted, as in the Japanese longtailed fowls, and the fowls of the woods of the Fiji Islands. Also the group of Ruff and Reeves, illustrating external variation, according to sex and season. Demonstrations of color adaptation, Protective Mimicry, Albinism, Melanism, etc., all present the Philosophical System; while the same, carried still further, beyond the limits of mere teleological considerations, converts the museum into an embodiment of an evolutionary thesis. In this way from the inorganic through the first phases of organic life to its crowning development in man with all the related phases of ascending civilization what a transcendent picture of cosmology the museum may become. It is perhaps realized nowhere today because the opportunity and the governing mind are not anywhere associated. The Philosophical System in Anthropology and Ethnology affords a field of more than surpassing dimensions. It is exhilarating to consider how a really profound and learned exhaustion of these subjects, with the extraordinary and increasing facilities for a complete compendium, afforded by this day's research and exploration, would exemplify the Philosophical System! To start from Prehistoric Man, to unfold the dawning cults, the nomadic and sedentary strains and to trace their divergences, the origin of race metropolises, and the slow emergence of metaphysical military and industrial civilizations; to take, in fact, Spencer's studies in sociology and give them an illustrated imaginal realism.

The Philosophical System has but a slender regard for systematists, and exults rather in revealing relations, sequences, and operations in nature, homologies and analogies, influence of environment, problems of philogeny, and those aspects of animal life which elucidate the principles of organic variation. It can, of course, be made most attractive, and has a more popular character than the Scientific System. Its instructions are for the most part quite readily apprehended, or can be made so, and in the larger subjects its demonstrations admit of a considerable pictorial effectiveness.

THE SCIENTIFIC SYSTEM

The Scientific System aims at an exhaustive display of species arranged, in Botany and Zoology, according to their biological affini-

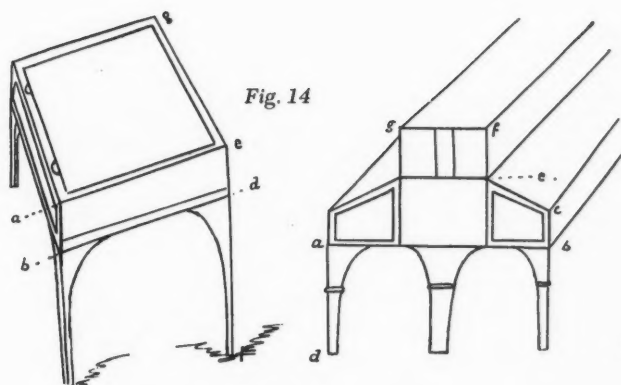


Fig. 14

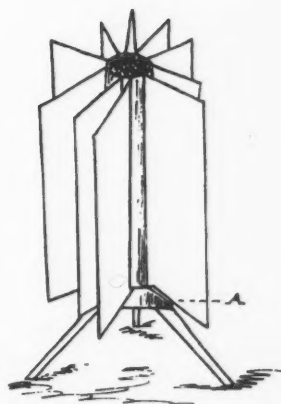


Fig. 15

ties, and in Palaeontology according to biology and position, while in inorganic life it illustrates the entire range of mineral science. This is the more common, the more generally insisted upon form of museum installation. It is well understood; cases filled with examples of all the known or obtainable specimens of species. At its best, when it takes on, more and more, a philosophical expression, the Scientific System, uses diagrams, photographs, and maps, to illustrate anatomy, habits, and distribution, and it does not hesitate to involve popular features in its work, describing special things with clearness and interest. Indeed an enlightened Scientific treatment tries to alleviate the dryness of its terminology with popular and informing features. The curator who thinks his science is invalidated by entertaining instruction to the public is certainly deceived.

The cosmopolitan museum will make use of all these systems, building up from the Scientific, as a basic method, and introducing the Philosophical at all necessary points, while the Popular treatment would prevail like a dominant influence over each.

In this connection and before passing to effect, I beg to introduce the remarks of Dr. G. Brown Goode, concerning *Labels*. Dr. Goode has remarked that "the art of label writing is in its infancy, and there are doubtless possibilities of educational results through the agency of labels and specimens which are not as yet at all understood." He further says the label must:

"(1) Tell the name of the object; its exact and technical name always, and if there be one, its common name.

(2) It must call attention to the features which it is important for the visitor to notice.

(3) It must explain its meaning and its relations to the other objects in the series. If it accompanies a natural history specimen, it should explain its geographical distribution, which, if possible, should be plotted on a small map, forming part of the label and mentioning peculiarities of structure or habit.

(4) The exact locality, date of collection and source of the specimen exhibited should be mentioned.

(5) For the convenience of visitors it is well, in many cases, to give the dimensions or weight of the specimen."

Dr. Goode has not, however, drawn sufficient attention to the use of General Labels, or pointed out their extreme efficacy in giving useful information. A group of objects, closely related, as a family of birds or shells, can be described *en masse*, as it were, and interesting instruction imparted by such a description, while Synoptical Groups should be preceded by a manual-like diagnosis of class or phyla features.

EFFECT

Impressions made upon the eye are of the utmost importance in museum installation. There may be some atrophied and stagnant temperaments to whom a beautiful or tasteful or impressive installation seems at war with the terribly serious considerations of science, but a very little attention to the facts of the case would entirely relieve them of these fears. Because a specimen looks well, it is no less the same specimen than when it

looks poorly, and all cultivated instinct aims to achieve, in making it look well, is to make it more easily seen, make it more conspicuous. There certainly is no desire, in those who strive for effect, to surround objects with decorations which defeat their own purpose, and bring more attention to the embellishment than to the object. The most refined appreciation of effect sees that the different departments of a museum may need differing treatments and that severity of arrangement better accords with a display of Building Stones or Ores than ornament, while the lavish beauty of birds may demand foils and reliefs to their beauty to even make it more apparent.

In effect, arrangement, and color, contrasts count for everything. Proper spacing, selection of material, and backgrounds of good fortifying colors make notable improvements in the appearance of the specimens. Besides the painting of the cases and shelves, the use of cloth plush and paper can be utilized. It is certainly undesirable to attempt harlequin effects, and usually a few selected colors meet

every requirement.

There is room for much conflict of opinion upon the fitness of wall decoration, wall painting in Natural History Museums. I am inclined to believe it should not be tolerated; that all pictorial illustration should be in the form of framed painting. They are invariably better done, less subject to injury, and can be conveniently changed in position. There is certainly an attraction in the grandiose idea of a panorama about the walls of a room showing scenes and the objects related to them, associated together, in a great mural picture. It would be splendid if it could be realized, but can it be? To paint a mural decoration (on canvas) really colossal and appropriate would demand a master, and a small fortune. How can these requirements be met?

The public museum has entered into the life of European cities, and it is becoming apparent here how interested the public become in their development. Their installation, and the ideas governing it, cannot be too closely considered.

Setting Up the Department of Preservation and Restoration in the National Museum of India, New Delhi

T. R. GAIROLA, MUSEUM CHEMIST
NATIONAL MUSEUM OF INDIA, NEW DELHI

One of the essential adjuncts of the development of the museum movement in India is the establishment of a central conservation and scientific examination laboratory to cater to the needs of the various museums. Such a laboratory can carry on the chemical treatment and preservation of the museum collections and thus preserve the cultural heritage of the country. It is well known that various forms of deterioration and decay lead to irreparable damage or destruction of museum objects, and it has now been accepted that most of the valuable fragile specimens of history and art would have been lost if some kind of chemical treatment had not been given to them for preservation. This work is of a highly specialized nature and needs an up-to-date, well-equipped laboratory. The requirements are for scientific equipment, a library, a trained staff, and space—all adequately balanced to maintain a certain standard.

In a country as vast as India and which claims an ancient civilization starting from prehistoric times (3000 B.C.), and followed by golden periods of history, a considerable wealth in the form of objects of archeology, art, and anthropology lies scattered about both at sites and in private collections throughout the length and breadth of the country. The range of humidity and temperature here are very wide, and the problem of preservation and storage of these objects becomes a complex one and is comparatively more difficult than it is in many other climates. The material, being very old, is in many cases in such a fragile and delicate condition that it demands skilled, experienced persons with particular scientific background to handle them for preservation. The loss and damage of even a single piece of these precious historical records cannot

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be risked; hence the work must be done step by step, with a careful scrutiny of the results of treatment during the process. For introducing up-to-date methods and bringing advancement in the conservation and scientific examination of this material, research must also be carried on in this branch.

The science of preservation in museums deals with (1) scientific investigation carried out to throw light on the composition and technique of manufacture of the different materials, (2) the determination of the causes of deterioration and the formation of harmful encrustations on the surface and in the core which become defaced and the details of which are obliterated, (3) the elimination of factors that cause deterioration and the removal of undesirable encrustations and extraneous deposits from the object, and (4) cleaning by chemical, electrochemical, and ultrasonic methods in order to reveal the evidence of value to students and research scholars. These processes should be carried out in such a way that the original antique character of the material is not lost, (5) rendering it immune from further attack by fumigation, sterilization, and other means; and (6) making it suitable for exhibition in the museum under possibly ideal conditions so as to insure its stability both during storage or while being exhibited. Methods adopted for scientific examination are chemical, microchemical, spectrographic, microscopic, photomicrographic, metallographic, petrological, ultra-violet, infra-red, X-ray, beta-ray back scattering, and magnetic and carbon 14 determinations.

The subject matter is necessarily very varied, based on day-to-day problems relating to metals, stones, terracottas, coins, textiles, manuscripts, paintings, books, prints, drawings, and specimens of all kinds. As a matter of fact, each specimen that is submitted for treatment presents its own individual problem, and very often new methods must be devised for achieving satisfactory preservation and restoration. Most of the work is of a specialized nature and cannot be entrusted to inexperienced persons; hence the personnel must be properly trained before they can produce reliable work. The activities on the conservation side should be strictly coordinated with scientific examination and research of the relevant material.

The National Museum, of archeology, art, and anthropology, in New Delhi has in its collection well over 60,000 specimens, and every year this collection is augmented by fresh acquisitions and purchases. The specimens in this enormous collection represent various materials—metallic, organic, and siliceous. They cover a very long period of history, from the

Fig. 1. A view of the present laboratory, with a few members of the staff.

early civilization of the Indus Valley to the present day.

To meet the needs of scientific examination and conservation of this material, the Preservation and Restoration Department, the function of which is to carry on the restoration, preservation, and chemical research, has been established. The nucleus of this department was formed through the generous cooperation of the Department of Archeology of the Government of India, whose Director-General helped the National Museum by transferring the chemical laboratory with the nine staff members of its Museum's branch and library to the National Museum in 1958. Since then more equipment and more staff members have been added to the department, but they are still too few for the needs of a growing institution and an expanding movement.

At the present time the work in the laboratory is being carried on on a much restricted scale. The laboratory equipment and the staff are distributed between two buildings, so that the workers must very frequently move from one building to the other. Only one hall is equipped with gas, water connections, and a fume-cupboard arrangement. Ultimately, the work must be done on a larger scale both on the conservation of and scientific research on material in order to make essential data available for scholars and students.

In India, where there are 170 museums, there are no laboratories where the preservation of museum objects can be undertaken, except for workshops of only one or two rooms in the museums in Madras, Patna, and Calcutta. The National Museum in New Delhi can thus rightly be expected to educate the curators and directors of the various museums in the country in the necessity for chemical conservation of their museum specimens. Possibly a few more laboratories at the state level may be established, but even so a centralized laboratory organization is essential.

Fig. 2. Textile, in very fragmentary condition, brittle, with a tendency to curl, and covered with salt aggregates, collected by Sir Aurel Stein in Central Asia.

Fig. 3. The textile as preserved, showing at least some of the original pattern.

Fig. 4. Fragment of rim of a wooden bowl, also collected by Stein, cracked and full of hygroscopic salts which gave a moist appearance to the surface in damp weather.

Fig. 5. The object shown in Figure 4 after chemical preservation.

Fig. 6. A third object from the Stein collection—a block print on paper—was curled, stained, cracked, and so torn that it could not be properly handled.

Fig. 7. The block print after it had been cleaned of stains, stretched, and mounted on hand-made paper.



Fig. 2

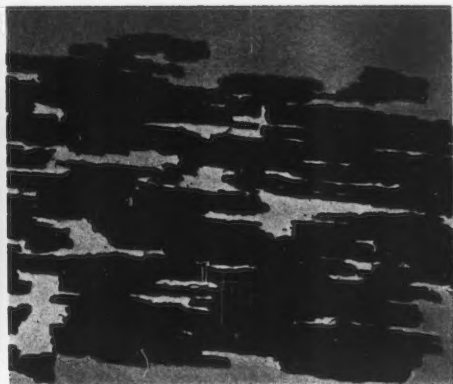


Fig. 3

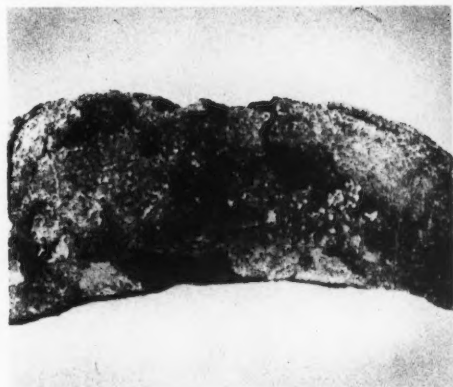


Fig. 4



Fig. 5



Fig. 6

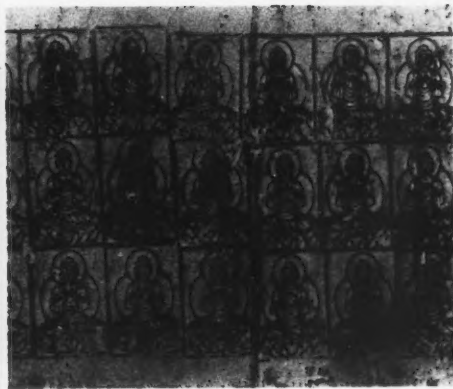


Fig. 7



Fig. 8



Fig. 9

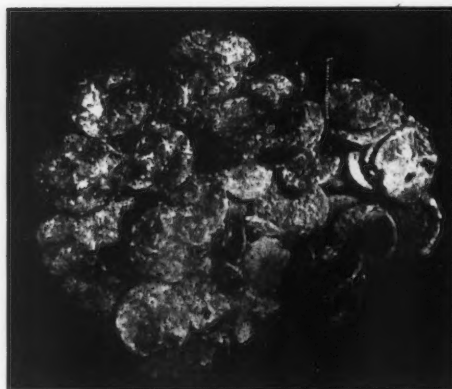


Fig. 10

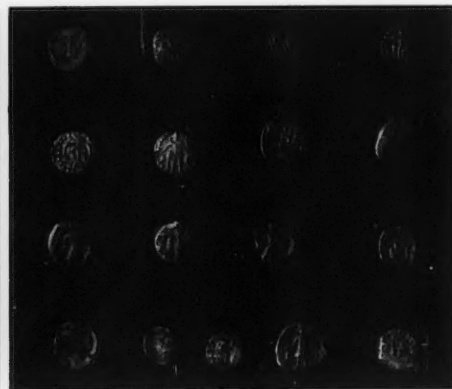


Fig. 11



Fig. 12



Fig. 13

Such an organization can not only give timely assistance to the museums of the country but coordinate the academic part of the work done in all state laboratories. In this connection, it should be mentioned that the establishment of laboratories is a difficult task and takes considerable time, as some of the heavy equipment must be imported. Only a few museums can afford to have specialized laboratories for museum work.

The Chemical Laboratory of the National Museum should be so fitted and equipped as to be able to undertake the kind of work that has been explained above and shown in the photographs. The requirements are many. In the complete set-up, we will have the following sections: (1) general laboratories, (2) research, (3) paintings (water color, wall, panel, and oil), and (4) textiles. Chemists, physicists, artists, photographers, technicians, and carpenters must all play their roles, and their work must be coordinated, for a common cause. A departmental library must be attached to the laboratory, which will have the various books and current journals on the subject available for ready reference. It is also extremely important that adequate stores of apparatus, equipment, and chemicals be built up.

The functions of the general laboratory would be the conservation of metallic objects, stone sculptures, coins, wood, ivory, bone, terracotta, manuscripts, and books. Besides the usual chemical staff, there would be a scientific photographer attached to this branch. The technical library, repairers, and bookbinders would also be under this section. In the research section, there would be a chemist and a physicist who would be responsible for the research work necessary in all four sections. The painting section would deal with all kinds of paintings and would have restorers, artists, and a carpenter on the staff. There would be three subdivisions in this section: (a) water-color paintings, prints, and drawings, (b) oil and panel paintings, and (c) wall paintings. The textile section would deal with the conservation of the fragile textiles, dresses,

Fig. 8. A fragmentary bone handle embedded in hard clay and calcareous material.

Fig. 9. The handle freed of extraneous matter, preserved, and shown with other similar specimens.

Fig. 10. Ancient coins as they were received in the laboratory.

Fig. 11. Coins after having been cleaned.

Fig. 12. An old sword handle covered with rust.

Fig. 13. The sword shown in Figure 12 after having been cleaned.

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carpets, and other fabrics that require stitching, mounting, strengthening, backing, and support.

In conclusion, I may add that the working of this department will be facilitated if opportunities are made available for mutual consultation and collaboration with institutions working in this field in more advanced countries.

Preparation for Professional Museum Careers

IRVING G. REIMANN, DIRECTOR

THE EXHIBIT MUSEUM, UNIVERSITY OF MICHIGAN

Museums are created by people. It naturally follows that museums of high quality reflect the quality of their personnel. Large, wealthy, established museums experience relatively little difficulty in attracting competent people to their staffs. Not only are the salaries usually at least adequate, but most workers in the field consider it an honor to be professionally associated with one of the great museums. The directors of these museums are men of knowledge, experience, and vision, and they are well equipped to establish criteria for their curatorships and other responsible positions, and to determine the fitness of applicants. There is nothing new to tell them about the necessity for depth and breadth of background.

The museums of medium size, too, are quite uniformly directed by men of considerable, sometimes superior, talent and experience. These museums are more often plagued by financial duress, and staff quality too frequently suffers from low budgets. Such a situation is likely to be more the fault of the governing board than of the director, who is helplessly bound by the limitations imposed by the salary scale. Many such museums (dare I say most?) are drifting farther and farther from original collecting, preserving, and research functions in order to emphasize activities of public or popular interest. Some, and I am thinking of specific examples, have relegated their collections to dead storage, fired their curators, and are trying to imitate community centers in the belief that such imitation is necessary for their survival or prosperity. Is this to be the fate of other museums? What of the uniqueness of museum functions? What of the integrity of the reputations of these museums elsewhere?

Taking into consideration the one-, two-, or three-man children's museums and historical museums in small communities, I suspect that

the employees of small and very small museums considerably outnumber those of the larger institutions. It is in the area of the small museums that I think museum education is most urgently required—not simply because there are so many of them, but because low salary scales have generally forced the employment of untrained personnel, and because large museums have experienced personnel available to guide, advise, or direct the novice.

We can hardly expect managerial boards or councilmen to attend classes or courses on museum purposes, functions, and philosophies. Yet these people, largely either uninformed or prejudiced, frequently are the ones who determine the policies and budget of a museum. Every non-professional person who is responsible or partly responsible for the program and support of any museum should have available to him a still non-existent brochure which will concisely state the proper functions and responsibilities of museums, their place in the community (whether city, state, or national), their place in the field of education, and the qualifications, duties, and fair salary range for all professional personnel. This would be a gesture towards beginning the education of those who control the destinies of museums.

The second category of those requiring museum education includes persons now professionally employed in museums. Competition for employment in the great museums may be presumed to be great enough so that these museums can be highly selective. But, as we go down the line towards the very small museums with increasingly smaller salaries and reputations, attracting and keeping qualified personnel becomes increasingly difficult. Often young or old people are hired simply because they have interest and will work for low pay. It is probably conservative to estimate that seventy-five per cent of the present employees of ninety per cent of our museums have had no previous museum training or experience. From the exhibit aspect the wonder is not that there are so many bad small museums, but that there are so many good ones. The good ones, and the ones that show signs that they would be good if they could, have someone in charge who either has had museum experience and/or has visited several progressive museums and/or has access to some of the fine current American or foreign museum periodicals. Our worry need not be about the standards of such museums, but how to help them achieve their standards. As far as raising standards are concerned, we should find ways to reach every museum of any size whose director or curator obviously knows little about modern museum practices, functions, or techniques. This is a problem of education not to be overlooked.

The third broad category covers those persons who are still students at either the undergraduate or graduate level. It is a clear-cut problem to prepare a curriculum for students who have set their sights on the

target, but many majors in science, art, or history who prepare themselves for a career in teaching, industry, or business may drift into museum work after some post-doctoral experience in another field. Perhaps one reason why the museum goal is not discovered by more undergraduate and even graduate students is that it is so rarely represented to them by their counselors or advisors as a career. A pamphlet describing museum work as a career should be prepared and distributed in large numbers among our colleges and universities for the information of counselors and advisors.

We look forward to the time when prospective museum exhibit specialists, dioramists, librarians, publicists, teachers, curators, and directors will all take the same basic courses in the field of museology, with their major in their principal field of specialization, with appropriate cognates. Before such a program of requirements can be realized, universities must give more recognition to museum work as a career, and students must know that this much preparation will lead to a career that is sufficiently rewarding financially.

To summarize the foregoing very inadequately developed remarks, we may say we are assuming that there are three groups that require education in aspects of museology: the non-professionals who govern and control general policies and who provide operational funds; present museum employees who require more background or more study in their fields of specialization; and those younger people who are preparing themselves for a life in museum work.

In the paragraphs following are suggestions for several ways of meeting needs for education in the museum field. I clearly recognize that some of the proposals introduce problems of implementation, but none of these will prove to be insurmountable after sufficient time and further study. As museum boards, city councils, and college administrators can hardly be expected to register for formal courses, little more can be proposed for them now than the preparation of appropriate brochures, as mentioned above. However, much can be said about providing opportunities for present and future museum employees. Without detailing curricular content in this article, I wish to offer the generalization that all extensive programs of museum education should have the curatorial function as their core, regardless towards what future position in a museum the student aspires. The second most important indoctrination should be in the understanding of the role of the museum in its field, and in its community.

Because of the many kinds of museums, and the looseness of application of the title "curator," a few words may be necessary at this point to clarify the discussion that follows. In my speaking of study for museum careers, consideration is given only to those aspects of museum studies that do not involve the actual disciplines of science, art, or history. In

other words, I believe that education in these fields does not require our concern here. However, it is recommended that the specialists, or curators, do include aspects of general museology in their courses of study. Usage of the title "curator" is restricted to those positions that are primarily, or solely, devoted to the acquisition, care, and study of objects whether natural or artifactual.

When the small number of museology courses that have been offered in the past and the present large number of museum employees are considered, it is reasonable to assume that most of our museums are staffed by personnel that have had no previous exposure to museum studies. Very likely employees with several years of experience in larger museums may have picked up all they need to know about their job, but in very small museums it is just as likely that employees may be still groping or feeling their way after several years on the job. Any program for museum training should provide opportunities for presently employed personnel. There could be several ways of accomplishing this. The first to be considered should be a sort of crash program, whether it be called seminar, workshop, clinic, or summer institute. Such an idea is not new, and in recent years such seminars have been conducted at Cooperstown, the University of Oklahoma, McGill University, and the National Museum of Canada—to mention a few. Such seminars are most effective when conducted by leaders in the various museum fields, and, where appropriate and relevant, specialists from industry and business should participate. Seminars of this type should be available in each conference area. They should be planned on a progressive basis, specializing each year on limited topics so that over a period of years a broad knowledge can be acquired, or so that specific training on all aspects of museology is made available from time to time without the necessity of one's sitting through three-fourths of a course to get the one-fourth wanted. There is, to be sure, also room for intensified general courses.

I have long felt that, excellent preliminary training notwithstanding, nothing is equivalent to learning by doing. Perhaps some day, even though the suggestion seems impractical now, a temporary employee exchange service between large and small museums can be effected. The small museum would be the principal beneficiary, receiving the stimulus of experienced personnel from a large museum as well as on-the-job training for its own employee. More satisfactory from the standpoint of the large museum would be simply the acceptance of personnel from small museums on an internship basis.

In the late 1930's a generous grant from the Rockefeller Foundation was given to the Buffalo Museum of Science for an internship program. Young museum workers of promise from this country and abroad were selected on a leave-of-absence basis from their museums to study the

principles and practices of modern museums under the direction of Dr. Carlos E. Cummings, then Director of that museum. Each intern was assigned a research problem. Not only were adequate salaries provided, but expenses were paid for a coast to coast trip to study the leading museums of the country. The program was eminently successful, and the names of one or more of the former interns are probably known to everyone who may read this article. We hope that this program may be revived on a permanent basis and in each regional conference area.

Another method of helping current museum employees to gain information and background is the correspondence course. The properly supervised and accredited correspondence course has attained a status of respectability, even among many conservative educational institutions, and it offers a possibility not to be dismissed lightly.

There are at least two approaches to the subject of educating young people for museum careers. One is an idealistic approach which assumes a requirement of a Ph.D. degree for all jobs other than secretarial or janitorial, as recommended by the American Association of Museums Committee on Museum Training. The other is to meet head-on the problem as it exists today. Our sights should be set on the Committee's goal, but its achievement will not materialize for the smaller museums until salaries justify the lengthy period of education. In the larger museums, even now, a Ph.D. degree is almost a *sine qua non* for curatorial appointments.

Neither for the future nor at the present time does it seem desirable to establish museology as an undergraduate major. As in other fields, this period of one's education should properly be devoted to assembling a broad body of knowledge as a foundation for future specialization. In those colleges and universities that have an accredited museum, or are closely associated with one, general courses in museology can be offered at the undergraduate level, with opportunities for graduate specialization. The undergraduate courses, in particular, should be directed on the assumption that the students will be staff members of a very small museum, and the stress should be on the broad aspects of museum functions, operation, and responsibilities, with no attempt at the development of specialized skills. It is not that all the students will ever be involved in all the minutiae of museum operation, but a museum worker worth his salt should have developed a critical sense and an understanding of the whole broad picture. These qualities are essential in the worker who must run a small museum, or who must fit into the complicated program of a large one.

Several college and university museums are well equipped to offer courses and first-hand experience in several of the functions of museums. These functions include those associated with collections and exhibits.

However, I know of no such museum that can offer direct experience in more than one or two of the other manifold activities characteristic of good municipal museums, such as classes and clubs for children and adults, popular publications, radio and television planning and participation, "popular" field trips, branch museums, school loans, "popular" public lecture programs, traveling exhibits, memberships in a sponsoring or supporting society, museumobiles, "popular" libraries, business routines, promotion activities, community relations, and many others. These important museum activities or functions can of course be outlined and discussed in any general museum course anywhere. Ideally, I believe that all undergraduates who major in any of the disciplines that may lead to employment in any kind of museum should be encouraged to take a course in museum theory and practice. This should be completed by the end of the sophomore year in time to stimulate interest and to plan for the cognate courses for which need becomes apparent. However, in view of my advocacy of learning by participation, to be honest I must admit that thorough grounding in many aspects of museology is available only in the larger, aggressive, metropolitan type of museum. This need not preclude credits towards degrees. Close integration of museums and universities can be profitably established, as has been demonstrated by the arrangements between, for instance, the Winterthur and Hagley Museums and the University of Delaware, and the Buffalo Museum of Science and the University of Buffalo.

The Buffalo system (I refer to it as such because of my association with that museum in the 1930's during the early days of its training course), when offered by a suitable institution, has the advantages of the student's direct participation in nearly all the aspects of museum operation. Briefly the system is this: qualified students spend varying lengths of time during a period approximating one semester, in *every* department of the museum, with instruction by curators and department heads, and an equivalent length of time after the course to work in the department of their choice. The students put in an eight-hour day, five days a week. The tuition is nominal, and the students are given the opportunity to earn it back during the second semester. Museums qualified to give such a course probably occur in each of the six regional conference areas. I am strongly in favor of accreditation of such museums by the American Association of Museums and having similar courses offered on a country-wide basis.

It is possible that for college students who cannot afford to attend a college or university where museology is taught, or who cannot attend a Buffalo type of course, effective and adequate introductory education could be provided through correspondence courses.

A summary of the principal ideas that this article is intended to convey may be helpful:

1. For the information or education of museum boards, municipal offices, university administrators, or any persons who are responsible for museum policies and budgets, a suitable brochure should be prepared.

2. A brochure should be prepared for the information of student advisors or counselors in order that they may represent the museum profession as a career.

3. Additional education or job preparation for currently employed museum workers can be acquired through crash programs, exchange services or internships, correspondence courses, or leave-of-absence study at an accredited institution.

4. Initial studies in preparation for a museum career can be effected in selected colleges and universities at either an undergraduate or graduate level, by attending a Buffalo type of program (which in part is a sort of apprenticeship), or by correspondence courses.

5. Beginning courses should be slanted towards the personnel of the very small museum and should stress functions, philosophies, and methods rather than technical skills.

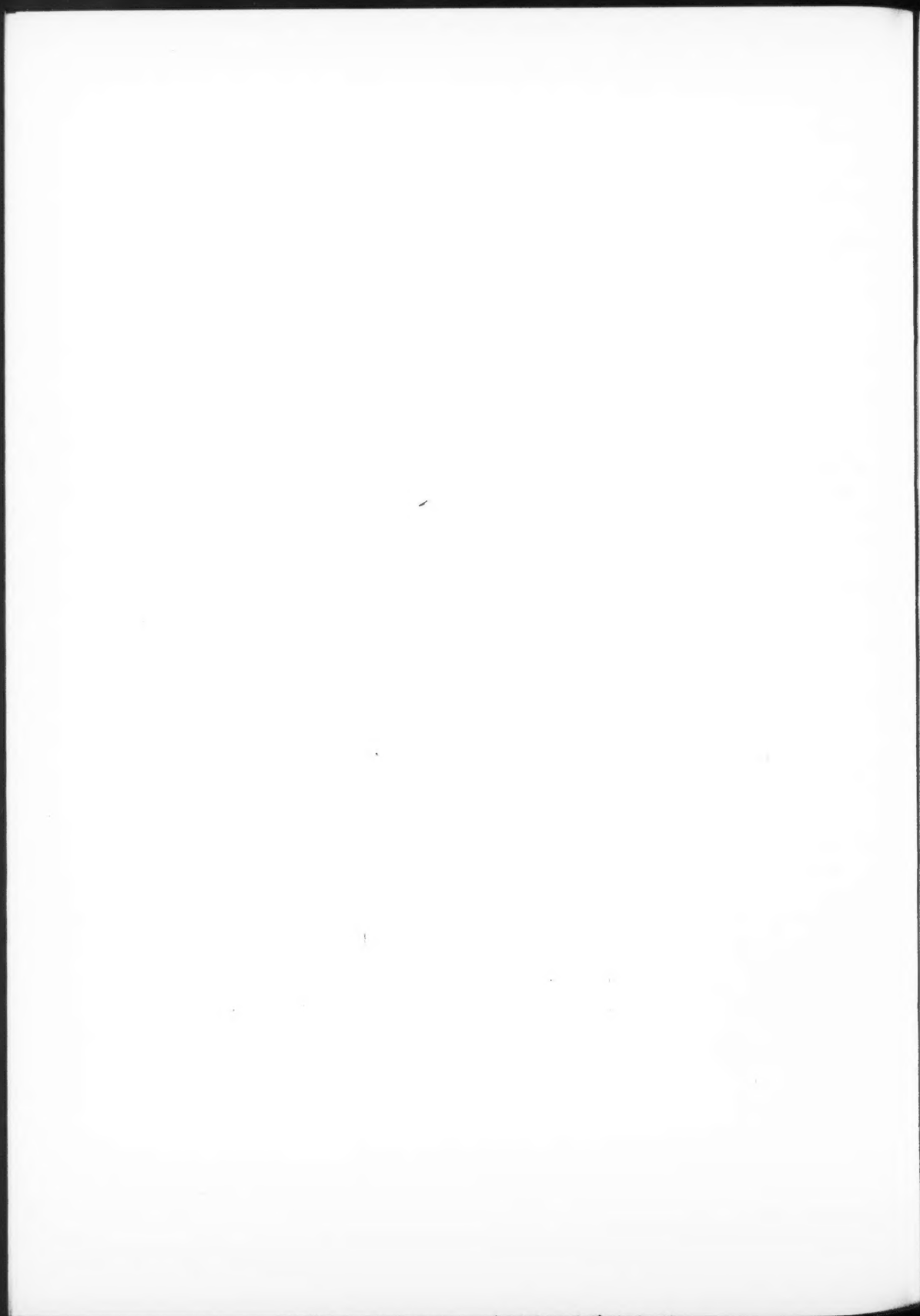
6. Majors in subjects that may lead to a museum career should be encouraged to include general museology early in the course of study.

7. Advanced studies can be offered by cooperation between universities and the larger museums, and by some college and university museums.

8. Accredited courses should be offered in each of the six conference areas.

9. The American Association of Museums should examine and approve the content of all courses and the caliber of instructorship, designate accredited institutions, and provide certificates or diplomas which could be regarded as evidence of some preparation for museum work.

While it is hoped that this article will encourage more consideration of formal preparation for museum careers, it is also hoped that we will not become so restrictive as to make impossible the employment of mature people of exceptional ability in specialized fields.



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